

# University News

A WEEKLY JOURNAL OF HIGHER EDUCATION

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**K.B. SATYANARAYANA**

## **NBT and the Book Fairs**

**P. PRIMA**

## **Conceptualisation in Social Science Research**

**J.V. VAISHAMPAYAN**

## **Extension - The Third Dimension of Higher Education**

**D. PRAKASH & BIRENDRA KUMAR**

## **Training of Agricultural University Teachers in Educational Technology**

**UNIVERSITY-INDUSTRY LINKAGE**

**83RD INDIAN SCIENCE CONGRESS**

**INTER-VARSITY NATIONAL YOUTH FESTIVAL**

**INTERVENTION FOR SOCIAL TRANSFORMATION**



**Association of Indian Universities**



# INDIAN STATISTICAL INSTITUTE

203 B.T. Road, Calcutta - 700 035

## ADMISSION NOTICE 1

SESSION : 1996-97

Applications are invited for the following programmes from candidates having qualifications as shown against each programme. Stipend as mentioned against each programme will be available for deserving candidates

- 1 **3-year B.Stat (Hons.)** 10+2 years of secondary education with Mathematics and English Stipend Rs 500/- p m
- 2 **2-year M.Stat** 3-year Bachelor's degree with Statistics or Mathematics as full subject Those without Statistics, but having outstanding mathematical ability, may also be considered Stipend Rs 800/- p m
- 3 **2-year Master of Science (M S) in Quantitative Economics** : Three year Bachelor's degree with Economics and Mathematics as full subjects Stipend Rs 800/- p m
- 4 **2-year M.Tech in Computer Science** : (i) Master's degree in Mathematics/Statistics/Physics/Electronic Sciences/Computer Science/MBA/MCA or a Bachelor's degree in Engg /Tech and (ii) knowledge of Mathematics at graduate level Stipend Rs 1800/- p m
- 5 **2-year M.Tech in Quality, Reliability and Operations Research** (i) Master's degree in Statistics and knowledge of SQC and OR, or Bachelor's degree in Engg /Tech and (ii) knowledge of relevant topics of Physics Chemistry (H S level) and Mathematics (graduate level) Stipend Rs 1800/- p m
- 6 **Junior Research Fellowships** : (a) **Statistics, Mathematics** : (i) Master's degree in the relevant subject or (ii) outstanding mathematical maturity with Bachelor's degree in Statistics/Mathematics as the main subject (b) **Economics** : Master's degree in Economics (ii) Outstanding mathematical maturity with Bachelor's degree in Economics or (iii) Master's degree in Sociology with Mathematics/Statistics and Economics at Bachelor's level (c) **Computer Science and Communication Science** : (i) MCA/M Sc or equivalent in Physics/Mathematics/Statistics/Electronic Sciences/Computer Science, or (ii) M E /M Tech or equivalent in Electronics/Computer Science/Electrical Engineering/Radiophysics (d) **Theoretical Computer Science** : same as 6(c) and having strong mathematical ability (e) **Theoretical Physics/Applied Mathematics** : Master's degree in Physics/Mathematics/Statistics/Applied Mathematics (f) **Biometry** : Master's degree in Physiology/Biochemistry with Nutrition as a subject (g) **Geology** : Master's degree in Geology/Earth Sciences (h) **Sociology** : Master's degree in Sociology/Social/Anthropology (i) **Anthropology** : Master's degree in Anthropology/Human Biology/Human Genetics/Human Ecology (j) **Statistical Quality Control and Operation Research** : (i) Master's degree in Mathematics/Statistics, or (ii) Bachelor's degree in Engineering with knowledge of Statistics, SQC & OR and Computer Stipend Rs 2500/- p m
- 7 **2-year Specialist Development Programme in SQC and OR** : M Sc /B E with (i) Diploma in SQC and OR of the Institute or (ii) One year's P G training in SQC and OR in industry with adequate applied work Stipend Rs 2500/- p m
- 8 **1-year Certificate/2-year Diploma Course on Operation and Programming of Automatic Data Processing Equipment** : (i) Age below 25 years on 1-4-96 (ii) Bachelor's degree with Mathematics as a subject at Higher Secondary (10+2) level (iii) Typing speed of 25 words per minute A tuition fee of Rs 3000/- per year is charged for this course

All programmes except 6(j) are offered in Calcutta whereas 2, 6(a) and 6(b) are offered in Delhi and Bangalore also 6(j) is offered in Bangalore only. The complete details are available in the prospectus. Selection of candidates is based on academic record as well as written tests and interviews conducted by the Institute. Candidates who have been offered Junior Research Fellowships by the CSIR/NBHM may directly seek an interview at any time of the year for Fellowships listed in 6, but for programmes 4 and 5 ISI written tests and interviews are compulsory even for candidates with valid GATE or UGC/CSIR test scores.

Hostel facilities are available. Selection tests for the programmes will be conducted at a number of centres in India and abroad. Candidates who are due to complete the qualifying examinations before 1 July 1996 may also apply. This date may be relaxed by the Institute in case of candidates with outstanding academic record and performance in the selection tests and interviews. Starting from Monday, 5th February 1996, prospectus and application form can be obtained from the Dean of Studies, Indian Statistical Institute, 203 Barrackpore Trunk Road, Calcutta-700 035, by paying an amount of Rs 60/- in cash (between 11.00 a.m. and 2.00 p.m. on working days from Monday to Friday) or by bank draft in favour of "Indian Statistical Institute" payable at Calcutta (proper). Postal orders, money orders and cheques will not be accepted.

**Last date for receiving requests for application forms** Monday, 4 March 1996  
**Last date for receiving completed application forms** Friday, 29 March 1996  
**Date of selection tests** Sunday 12 May 1996

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cies of the Association.

Editor :  
SUTINDER SINGH

# NBT and the Book Fairs

K.B. Satyanarayana\*

To promote and assist a balanced growth of book development in the country, National Book Trust, India (NBT) was formally constituted in 1957 by Government of India, as an autonomous body with Dr. John Mathai as its first Chairman. The major activities of the NBT among others as indicated are :

1. Publishing
2. Book Fairs at National, International and Regional levels
3. Organising Writers' Campus/Seminars/Symposia Workshops, etc.

True to its objectives, NBT had taken up the responsibility of publishing good supplementary reading materials at an affordable price for all the segments of students at the school level and it did come out with a unique series (1) *India — Land and People*; (2) *National Biography*; (3) *Young India Library*; (4) *Popular Science*; (5) *Folklore of India*; (6) *World of Today*; (7) *Nehru Bala Pusthakalaya*; and (8) *Adan Pradan*, besides operating subsidy schemes to make available some low-cost good textbooks to the students. So far as the publishing activity is concerned, NBT was basically performing this job in collaboration with the Publications Division, Govt of India, upto 1962. It was only from 1963 onwards, NBT started its own independent publishing programmes. Between 1957 and 1970, NBT's list of published titles stood at 412 and all these useful books with low-prices were brought out with colourful and attractive covers. By the end of 1977, the total number of titles brought out by NBT rose to 1675 and the commendable job done thereafter is an open book for all.

## Book Fairs

Between 1964-65 to 1976-77, NBT was able to organise some 83 book fairs at the regional level without any regular schedule. But it was in 1966 that NBT was able to conduct its first well planned National Book Fair in Bombay during 5th November and 20th November, making a beginning in organising book fairs at the national level with a definite programme. Today NBT has to its credit seventeen such successfully organised National Book Fairs held at different State capitals in the country. From 1975 onwards NBT made these National Book Fairs a bi-annual event, so as to see that these did not clash with NEW DELHI WORLD BOOK FAIRS. The latest held in this series was 17th National Book Fair during 30th September and 9th October 1994 in Nagpur.

At the international level, besides taking part in all the significant international book fairs held all over the world (NBT participated in 91 such international book fairs between 1969-70 and 1977-78) NBT was able to organise its first New Delhi World Book Fair during 18th March and 4th April 1972 to coincide with the Silver Jubilee Year of Indian Independence. This was organised at Windsor Place, New Delhi at that time. From 1976 onwards, NBT has organised these New Delhi World Book Fairs in the international exhibition grounds at Pragati Maidan once every two years. Eleven such New Delhi World Book Fairs have been successfully organised so far. The ensuing fair being held during 3rd February to 11th February 1996 is the 12th in

\*Booklinks Corporation, 84, Bana Nagar (LIC Colony), Opp. Indira Park, Hyderabad-500 008.

the series.

At the regional level, NBT had started organising Book Festivals from 1980 and the first that was held in this series was at Indore during 26th October and 2nd November 1980 and today NBT has to its credit 15 such successfully organised Book Festivals at different towns and cities, mostly other than State capitals, so as to cover more areas in the country. The latest in this series was held in Nagpur during 27th November and 5th December 1993. Not only that, NBT has gone a little beyond and started organising Children Book Fairs at important cities and towns all over the country to foster book mindedness and to inculcate reading habits among the children. The first such Children Book Fair was held in Calcutta during 4th Novem-

ber and 14th November 1983 and thereafter fourteen such Children Book Fairs have been organised by NBT in many important towns and cities, latest one held in this series was at Hyderabad during 1st and 9th January 1994.

During all these regular book fairs, NBT also organises or helps organise Writers Camps/Seminars/Symposia/Workshops, etc in order to train up the authors/translators and invites or helps the librarians and book industry people to hold their annual conferences/seminars, etc. All these programmes or activities during the book fair periods are meant to develop a balanced growth of book development in the country.

Through these book fairs at national, international and regional levels, NBT has been able to

NEW DELHI WORLD BOOK FAIRS organised by NBT once in two years at Pragati Maidan, New Delhi. First in this series was held at Windsor Place, New Delhi		
1st	18.03.72 to 04.04.72	
2nd	16.01.76 to 25.01.76	
3rd	11.02.78 to 20.02.78	
4th	29.03.80 to 12.04.80	
5th	05.02.82 to 15.02.82	
6th	04.02.84 to 14.02.84	
7th	07.02.86 to 17.02.86	
8th	05.02.88 to 15.02.88	
9th	13.02.90 to 18.02.90	
10th	01.02.92 to 09.02.92	
11th	04.02.94 to 13.02.94	
12th	03.02.96 to 11.02.96	
From 1976 onwards, New Delhi World Book Fair has been a bi-annual event		
NATIONAL BOOK FAIRS organised by NBT generally once in two years at different State capitals		
1st	05.11.66 to 20.11.66	Bombay
2nd	13.12.67 to 31.12.67	Delhi
3rd	15.11.69 to 04.12.69	Bombay
4th	19.12.70 to 03.01.71	Madras
5th	25.01.73 to 04.02.73	Calcutta
6th	31.01.74 to 11.02.74	Bombay
7th	07.02.75 to 16.02.75	Hyderabad
8th	15.01.77 to 24.01.77	Ahmedabad
9th	29.12.78 to 07.01.79	Bangalore
10th	January 1981	Jaipur
11th	25.02.83 to 07.03.83	Chandigarh
12th	02.10.85 to 12.10.85	Patna
13th	10.01.87 to 20.01.87	Trivandrum
14th	16.12.88 to 26.12.88	Lucknow
15th	28.12.90 to 06.01.91	Jaipur
16th	30.01.93 to 07.02.93	Bangalore
17th	30.09.94 to 09.10.94	Nagpur
BOOK FESTIVALS organised by NBT		
1980	26.10.80 to 02.11.80	Indore
1980	23.11.80 to 30.11.80	Calcutta
1981	26.04.81 to 03.05.81	Cochin
1986	04.08.86 to 14.08.86	Srinagar
1989	27.01.89 to 06.02.89	Baroda
1989	25.02.89 to 03.03.89	Coimbatore
1989	01.12.89 to 10.12.89	Vijayawada
1990	24.08.90 to 03.09.90	Ernakulam
1990	28.09.90 to 07.10.90	Pune
1991	31.08.91 to 08.09.91	Madurai
1991	28.09.91 to 06.10.91	Bhopal
1992	31.10.92 to 08.11.92	Bhubaneswar
1992	26.11.92 to 06.12.92	Visakhapatnam
1993	30.10.93 to 07.11.93	Ranchi
1993	27.11.93 to 05.12.93	Nagpur
CHILDREN BOOK FAIRS organised by NBT at different State capitals		
1983	04.11.83 to 14.11.83	Calcutta
1984	N.A.	New Delhi
1985	14.11.85 to 23.11.85	Allahabad
1988	14.11.88 to 24.11.88	New Delhi
1989	01.09.89 to 10.09.89	Bangalore
1990	01.12.90 to 10.12.90	New Delhi
1991	01.02.91 to 10.02.91	Ahmedabad
1991	02.11.91 to 10.11.91	Calcutta
1992	28.12.91 to 05.01.92	New Delhi
1992	03.10.92 to 11.10.92	Guwahati
1992	14.11.92 to 22.11.92	New Delhi
1993	02.01.93 to 10.01.93	Ahmedabad
1993	02.10.93 to 10.10.93	Delhi
1994	01.01.94 to 09.10.94	Hyderabad

spread the book fair culture throughout the country. The tremendous response from the book lovers to these book fairs encouraged the book trade organisations and other voluntary organisations in various States of the country to organise on their own State-wise Book Fairs in their respective States. Among the States that organise these State-wise book fairs, three States i.e. West Bengal, Tamilnadu and Andhra Pradesh, are doing an excellent job. These State-wise Book Fairs are Calcutta Book Fair, Madras Book Fair and Hyderabad Book Fair. Again

among these three, Calcutta Book Fair is the best one almost gaining a sort of national status, sometimes even excelling the New Delhi World Book Fair. But it is in Andhra Pradesh alone that four such regular and annual book fairs are being held i.e. Hyderabad Book Fair, Rajahmundry Book Fair, Vijayawada Book Festival and Visakhapatnam Book Festival. When some of the States do not organise even regular annual book fair, Andhra Pradesh certainly deserves a special place on the book fair map of India.

HYDERABAD BOOK FAIRS Organised Annually		RAJAHMUNDY BOOK FAIRS Organised Annually		VIJAYAWADA BOOK FESTIVALS Organised Annually	
1st	17.01.86 to 27.1.86	1st	10.02.82 to 14.02.82	1st	29.09.89 to 08.10.89 (NBT)
2nd	13.02.87 to 23.02.87	2nd	12.01.83 to 16.01.83	2nd	05.01.91 to 15.01.91 (VBFS)
3rd	08.01.88 to 18.01.88	3rd	09.01.84 to 13.01.84	3rd	10.01.92 to 20.01.92 (VBFS)
4th	24.02.89 to 06.03.89	4th	04.01.85 to 08.01.85	4th	01.01.93 to 11.01.93 (VBFS)
5th	09.01.90 to 21.01.90	5th	09.01.86 to 13.01.86	5th	01.01.94 to 11.01.94 (VBFS)
6th	01.03.91 to 11.03.91	6th	07.01.87 to 11.01.87	6th	01.01.95 to 11.01.95 (VBFS)
7th	27.12.91 to 06.01.92	7th	06.01.88 to 10.01.88	7th	01.01.96 to 11.01.96 (VBFS)
8th	29.01.93 to 08.02.93	8th	08.01.89 to 12.01.89	VISAKHAPATNAM BOOK FESTIVALS to be Organised Annually from now on	
9th	27.01.95 to 06.02.95	9th	04.02.90 to 08.02.90		
10th	01.12.95 to 11.12.95	10th	11.02.91 to 15.02.91	1st 26.11.92 to 06.12.92 (NBT) 2nd 03.12.93 to 13.12.93 (VBFS) 3rd 01.12.95 to 11.12.95 (VBFS)	
		11th	13.01.92 to 15.01.92		
		12th	11.01.93 to 13.01.93		
		13th	18.03.94 to 20.03.94		
		14th	13.01.95 to 15.01.95		

## PROFESSOR S.R. PALIT MEMORIAL AWARD-1997

Nominations are invited for the award of Professor Santi Ranjan Palit Memorial Award for the year 1997.

The award of Rs 10,000/- value is instituted in the year 1985 in memory of late Professor Santi Ranjan Palit, a distinguished physical chemist and pioneer in Polymer Science who served Indian Association for the Cultivation of Science as a Professor of Physical Chemistry during 1947-1976. The award is given biennially by Indian Association for the Cultivation of Science (IACS) to distinguished scientists for outstanding research contribution made in India during the ten years preceding the year of the award in the fields of Physical Chemistry and/or Polymer Science.

Nominations may be submitted by Vice-Chancellors of Universities, Deans of Science, Engineering and Technology faculties of Universities, Institutes, Directors of IITs and similar other institutions such as IISc, Bangalore, Directors of National, CSIR and Government laboratories, Heads of R & D organizations that are engaged in research in Physical Chemistry and/or Polymer Science, Presidents/Chairmen/Directors of INSA, ISRO, ONGC, BARC, TIFR etc., Presidents/Chief Executives of Registered Scientific Societies and the previous Palit awardees. Each such nomination shall be accompanied by a biodata of the nominee along with a list of publications, highlights of the work carried out by the nominee and a critical assessment report (not more than 500 words) highlighting the importance and significance of the research contribution made by the nominee during the ten years preceding the year of the prize. Each nomination must be accompanied by a reprint, each of not more than 5 key publications of the nominee and a declaration/certificate that the work has been carried out in India.

The nominations signed by the sponsors should be marked *confidential* and sent by Registered A.D. post to the Director, Indian Association for the Cultivation of Science, Calcutta-700 032 latest by 30th June 1996.

Prof. D. Chakraborty  
Director,

Indian Association for the Cultivation of Science,  
Calcutta-700 032

# Conceptualisation in Social Science Research

P. Prema\*

Research is a fascinating activity provided the researcher has the necessary aptitude, inclination, infrastructural facilities, and a feeling of encouragement. The quality of research suffers when the researcher lacks proper understanding of the variables or concepts involved in the study. There is a strong demand for the ability to conceptualise on the part of the researcher for any meaningful research.

Books on research methodology very rarely deal with the problem of conceptualisation. In spite of its importance, this process has received very little attention from the authors of publications on research methodology. A clear understanding of the concepts in the research study, the process of conceptualisation and the steps involved in the process will enhance the quality of research

## What is Conceptualisation?

Conceptualisation is a process of giving meaning (not just defining), an orientation or perspectives of the terms, concepts and variables in the area in which research is undertaken. Concept itself is a classification or generalisation based on observed similarities including the essentials and excluding the nonessentials, thus forming a global idea about objects, people and events.

## The Need for Definition

It is necessary for the researcher to define the terms first in order to understand their full meaning. Definition of terms should be based on the context, history, relevance, frame of reference, person and culture because a simple definition to a term which describes complex human experience is difficult. For example while defining the term 'Child Care', one should remember how the concept has evolved, how different people (father, mother, child care personnel, researcher) use the term in different contexts, how the term is interpreted and how it differs from culture to culture. Hence, it is necessary

to give a broad, general, accepted definition of the term used in investigation.

Next, while defining, the researcher has to give an operational definition of the variables used in the investigation. This is necessary for meaningful communication to fellow researchers who want to verify the earlier research findings. The researcher has to show how the term has been used in his/her investigation. For example, 'teaching effectiveness' is a variable defined differently by different people. A headmaster may prefer to define this as 'ability of a teacher to produce cent per cent results'. A teacher-educator may define the term as 'the ability of the teacher to apply different teaching methodologies with a sound knowledge of the subject'. An investigator has to specifically define the term thus. As far as the particular investigation is concerned 'teaching effectiveness' is the score obtained by the teachers in a research instrument designed by the investigator for the purpose of measuring the variable. This is similar to defining intelligence as what intelligence tests measure. Having examined all possible explanations, descriptions, meanings, implications of the variable under investigation, it is necessary to clearly and operationally define what the variable means in the context of present investigation.

While defining a variable the investigator has to be very cautious because, if it is too broad, then the variable may mean many things accommodating several implications. If the definition is too narrow, the investigator may exclude some essential dimensions of the concept.

It is necessary to take care of the linguistic aspect while defining. There may be two or more words referring to the same concept. A single concept may have several meanings according to the context which has been already discussed.

## Steps in Conceptualisation

1. A thorough review of related literature and related research studies will throw light on various shades of meaning of the variable in different contexts. It is necessary to get a meaningful picture of

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the variable by 'seeing through' the various definitions.

2. The meaning of the variables may be arrived at empirically by getting definitions and descriptions from practitioners, subject experts and original thinkers. Care must be taken that while giving definitions of the variables under investigation, these experts do not give the definitions that are already available in the literature.

3. After getting a good number of definitions and descriptions for the variables under investigation, in the form of statements, it is necessary to condense them. Condensing will help the researcher to cull out crisp, specific definitions which are realistic. But while undertaking this task, care must be taken to include the essentials and exclude the non-essentials.

4. After culling out a specific definition for the variable under investigation, it is necessary to validate the definition with subject experts to remove

any possible ambiguities and to examine omissions and commissions. It is important to strike a balance between too-broad or too-narrow definitions. The researcher has to make a conscious choice remembering the fact that defining the term itself is an evolving phenomenon.

Conceptualisation is a process that begins with the task of searching a research problem and ends with final reporting. Lack of clarity results in poor quality research, the findings of which remain nonusable to solve practical problems. It is unfortunate that the research activity which is done to solve such problems ends without achieving this objective after spending a lot of energy, time and money. Only proper conceptualisation will raise the standard of any research and link it with development. A developing country like ours cannot afford to spend time and resources in wasteful research. Hence, the researchers should ensure that all the variables under investigation are properly conceptualised before the research activity starts.

## **APPLICATIONS INVITED**

### **XVIII RESEARCH GUIDES WORKSHOP IN AMERICAN STUDIES**

March 1996 1st week, Manipur

Each year the ASRC holds several workshops for research guides in order to enhance the quality of research of American Studies in India. Since research supervisors have limited opportunities to exchange ideas about research, some topics are overworked while few attempts are made to explore and identify new areas of investigation. The ASRC workshops help to ameliorate these problems. Given the situation in Indian universities, research guides very often define the limits of research problems on which advanced students work and, in many cases, select the actual topics for MPhil and PhD students. Hence the role of a research guide is vital in not only attracting more and better qualified students to American Studies but also in maintaining the quality of research in specific subject fields.

Key areas of research and methodology are identified in each workshop and intensive discussions are held on the latest literature available in each subject area. Generally each workshop has three or four resource persons plus around twenty participants chosen on a competitive basis from among those university faculty members who have supervised dissertations and theses in American Studies for at least five years.

The Eighteenth Research Guides Workshop will be held at Manipur during the first week of March 1996. Those interested in participating in the workshop should send a letter along with brief bio-data giving details of experience as a research guide (MPhil/PhD) to:

**Dr. S. P. Ahluwalia (Local Coordinator), Professor of Education  
Manipur University, PO Canchipur, Imphal 795003, Phone: 0385-330690**

Selected participants will be paid First Class rail/busfare (roundtrip). Tickets/ receipts would be required for reimbursement. This Workshop is intended for scholars in West Bengal and the states of the North East. Other applicants will not be considered.

**Deadline for applications is 15 February 1996**

# Extension — The Third Dimension of Higher Education

J.V. Vaishampayan\*

In the course of development of a society it is imperative that the cumulative knowledge and experience, necessary for the economic, social, cultural and political development of the society is passed on to the coming generations. Education is the process which makes this process of transhipment possible from one generation to the subsequent ones. This process continues both at formal as well as informal levels. While informal teaching and learning is highly unstructured and spontaneous, the formal education is more structured and the whole process can be divided into several distinct stages viz. primary, secondary and tertiary (higher) education. Although, all of them are important in their own way, the last one i.e. higher education is the most important. As the National Policy on Education - 1986 said "Higher education provides people with an opportunity to reflect on the critical social, economic, cultural, moral and spiritual issues facing humanity. It contributes to national development through dissemination of specialized knowledge and skills. It is therefore, a crucial factor for survival". At a micro level, being the last stage of formal education, with diversified foci, it has a lasting and permanent influence on the personality of an individual.

Higher education includes universities, degree and postgraduate colleges and other institutions of higher studies. The traditional approach regarded, teaching and research as the primary activities for them. The teaching activity was expected to mould the students for higher challenges of life both on and off job. While the technical institutions like engineering, agriculture, medicine, etc. have been emphasizing professional expertise in a particular profession, other universities have centered their activities in the fields of arts, science and literature which, although, do not prepare students for any specific profession nevertheless, prepare them for any profession or job that they may choose to take up after they finish their education at the university or the college.

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\*Director, Centre for Adult, Continuing Education and Extension, Lucknow University, Lucknow - 226 007

Research has always been considered as an activity that goes along with teaching. Research is intended to create new knowledge in the emerging areas or clarifying existing dilemmas through reinterpretation or reanalysis of existing concepts and theories.

This traditional approach of keeping the universities tagged to teaching and research only, kept them secluded from the community. At any time the number of students coming to the universities in India has never been greater than one per cent of population and the total population with higher education has not been greater than five per cent. It means that a very large section of population never had any opportunity to be in contact with the institutions of higher studies. The universities also could not spread their knowledge beyond a select few who came there as students. In this way the vast knowledge and expertise remained confined to the four walls of the universities and other institutions of higher studies while the vast lands of ignorance lay outside.

## Agricultural Universities

The barriers and the four walls were broken, perhaps for the first time, by the agricultural universities. They realised that the vast knowledge and advancements in agricultural sciences should be made available to the farmers and agriculturists and unless that is ensured, the society would, by and large, remain deprived of the gains of knowledge. This gave rise to extension activities in these universities.

The results of this approach are there for all of us to see. The extension work undertaken by the agricultural universities brought about the green and later, the white revolution, without which crores of people would have perished. Not only this, it earned the respect of the society for these institutions as well as for their professors, scientists and other functionaries.

## General Universities

Although the conceptual framework and im-



portance of extension is well established and recognised in the context of agricultural universities, it is not so for the non technical general universities. Most of the teachers and administrators of these institutions are not even aware that vast scope exists for these universities in the field of extension.

Although the *New Education Policy 1986* as well as various reports of University Grants Commission (UGC) viz. *New Guidelines on Literacy Programmes and Development of Higher Education in India* specifically talk about establishing Extension as the third dimension of higher education, it has remained confined to the pages of these reports and guidelines only. There are, probably, several reasons for this state of affairs: Firstly, proper measures were not taken to familiarise the people with the concept of extension; secondly, proper institutional measures were not undertaken to provide a forum for these activities. Although, centres/departments of Adult, Continuing Education and Extension were created by the UGC, they remained bogged down to the literacy programmes only, rather than becoming an effective forum for the extension activities for the whole university; and thirdly, no weightage was given to extension activities in the evaluation for recruitment and promotion of teachers and the emphasis remained on research only.

### **The Concept of Extension**

Like education, extension is an educational process which seeks to bring about desirable changes in the behaviour not only of individual human beings but in the community as a whole. However, it is much less formal and unstructured as compared to conventional education. Experts define extension education as "an applied science dealing with contents derived from field researches and experiences, with concepts and principles drawn from the behavioural sciences, with its focus on out of school education for adults and youth". Some others define extension as an activity to teach a person how to think and what to think and to teach people to determine accurately their own needs and to find solutions to their own problems as also to help them acquire knowledge and develop convictions in that direction. It is an educational activity which seeks to transmit knowledge, skill and wisdom to the community at a level which is easily understood and is practical. It is different from formal education in several ways:

#### **Formal Education**

1. Formal education is highly structured with faculties, departments, classes, etc
2. There is a fixed curriculum with year end examination and awarding of degrees
3. Formal Education starts from a theoretical or conceptual base and may or may not lead to practical solutions
- 4 The audience is children – for schools – or youth for universities & colleges
- 5 Classroom is a must
6. Teaching is vertical and curriculum oriented
- 7 Academic rigour or intensiveness of knowledge is essential and more so for universities
- 8 Audience is homogeneous with uniform goals.

#### **Extension**

- Extension is least structured, is interdisciplinary and is not a specialised teaching of a subject
- There is no fixed curriculum and depending upon the need of learner it is highly flexible. It is not intended to lead to award of a degree or diploma
- Extension Education is practical, field and problem oriented learning which may or may not lead to theoretical formulations
- The audience is mostly grown up, mature people
- Classroom is not a must
- Teaching is horizontal and mostly need based and life oriented
- Academic rigour not wanted, to be substituted by extensiveness and spread
- Audience is heterogeneous with diversified goals.

#### **Extension in Higher Education**

Since the Extension seeks to extend and disseminate knowledge and the benefit of knowledge to community, the nature and content of extension programmes will depend upon the situation and the context. The whole spectrum of extension in higher education can be divided into two broad areas:

- 1 Those intended towards schools and colleges; and
2. Those intended towards the community in general.

About the content of extension programmes, it must be recognised that the scope for extension exists for most disciplines taught in the universities. The following disciplines have an immediate scope for extension activities:

<i>Discipline</i>	<i>Suggested fields</i>
1. Law	Spread of legal literacy and setting up of legal aid cells to help individuals, groups and other social organisations.
2. Management	Management development programmes not only for executives but for workers, trade union leaders and small entrepreneurs, spreading the message of efficient management to research workers, social and cultural organisations.
3. Home Science	Management of home affairs for newly wedded couples, food and nutrition for the family; help in adoption of new roles and family life education.
4. Philosophy	Development of ethics and morals for the society.
5. Psychology	Interpersonal relations, problems of stress and frustration among people especially unemployed youth and unmarried grown-up girls, etc.
6. Economics	Functioning of markets and economy, government budgets and fiscal policy; change in various aspects of economic policy and its impact on people
7. Commerce	Accounting of business and non profit organisations, understanding of balance sheets and profit and loss accounts, investment and tax affairs of people.
8. Medicine	Health education and prevention of diseases, epidemic control and simple health care.
9. Science & Technology	Developments of scientific temper and understanding of technological breakthroughs.
10. Sociology & Social Work	Structure and functions of social groups, variables and dimensions of social development.
11. Education	Teaching of children, child psy-

chology; help in setting up of schools.

12. Botany	Plant protection and home gardening, rearing of decorative plants.
13. Environmental Science	Impact of environmental degradation on individual and society, man environment relationship, waste management and development of conservation culture.
14. Political Science	Importance of political power, different forms of governments and their relative merits, human and civil rights and duties, voter awareness campaigns.
15. Geography	Regional development, tourism and travel management, environmental education.

These are tentative suggestions. The experts in various disciplines may develop their own framework and decide the content, the target groups, and the logistics of extension for their subjects

Although the inspiration for extension as the third dimension of higher education has come from agricultural universities, the model of extension followed by them cannot directly be adopted by the universities in general because of the difference in the structure of knowledge, its dissemination and the target groups, apart from the great variety in the subject content vis a vis the agricultural universities. We need to develop our own conceptual and institutional framework for the purpose. Is it not a challenge worth taking?

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# Training of Agricultural University Teachers in Educational Technology — A Study

D. Prakash\*  
Birendra Kumar\*\*

Agricultural higher education in India can boast of a well organised network of State Agricultural Universities (SAUs) across the length and breadth of the country. There are twenty seven SAUs and four deemed-to-be agricultural institutes in India with a faculty strength of above fifteen thousand. In spite of the best efforts made by the coordinating body at the apex, Indian Council of Agricultural Research (ICAR), the quality of education varies from SAU to SAU. Like general universities, teachers of SAUs are appointed solely on the basis of their expertise in subject matter of specialisation. There is seldom any emphasis on aptitude or competency in teaching. Instructional practices have science of their own and teachers as practitioners must be guided by appropriate theories to design, deliver and evaluate instruction effectively. It is in this context that the concept of educational technology is fast emerging as systematic analysis of educational process to solve the problems. Educational technology takes a wholistic view of the total process to enhance performance by using knowledge base from both behavioural sciences such as psychology, sociology, etc as well as physical sciences and engineering including media. With manifold expansion of knowledge, growth in media technology and deep rooted concern for sustainable agriculture and environment, a major overhaul in teaching seems imperative. Indian Council of Agricultural Research (ICAR) has been alive to the need, and steps have been taken to expand infrastructure for training of SAU teachers in educational technology. National Academy of Agricultural Research and Management (NAARM) was set up at Hyderabad in 1978 as centre for advanced training and research in educational technology. Besides, regional centres have been planned to be set up in each representative region of the country. It is hoped that each SAU, in times to come, will develop its own in-house train-

ing facilities. Keeping in view the need to organise such training, the study aimed to seek opinions and suggestions of teachers on various aspects of organisation of training so as to develop appropriate strategy.

## Findings

The study was conducted at the first SAU, G.B. Pant University of Agriculture & Technology, Pantnagar, with representative sample of teachers (N = 73) and their supervisors (N = 23) with the help of a pre-structured questionnaire. Findings on opinions and suggestions on design of courses, interval for retraining, formation of training group, resource persons, venue, teaching methods, follow-up and alternative support measures are presented below:

### Design of Courses

(a) *Training needs in selected content areas* : Teachers are intellectuals who practise the craft of teaching. They have to perform various roles as course designers, planners of instructional system, instructors, media/resource managers, evaluators, etc (Kuboni, 1993 ; Lee and Reiguleth, 1994). Teachers in agricultural universities have to perform various other roles as academic counsellors, staff developers/trainers and consultants, besides serving on various professional and cultural societies. Thus, a range of competencies are required to help them improve their performance. Teachers were asked to indicate the extent of their need for training in selected five areas of training in educational technology viz. Educational concepts and course design, Teaching process, Instructional media, Evaluation, and Human resource development. It was found that teachers needed training in educational concepts and course design most, followed by instructional media, human resource development and evaluation. Teaching process was the least needed area for training (Table 1). Training need in all the five areas except teaching process, was reported to be of moderate order.

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**Table 1 - Training needs in various areas of educational technology**

Area	Mean	Rank	Training need
	Score		
Educational concepts and course design	2.66	1	M
Teaching process	2.47	5	S
Instructional media	2.59	2	M
Evaluation	2.51	4	M
Human resource development	2.58	3	M
Overall training need	2.63		
Range: 0.5-1.5 low (L)		1.5-2.5 slight (S)	
	2.5-3.5 moderate (M)	3.5-4.5 high (H)	

(b) *Nature of training*: Should training be made compulsory or voluntary for all the teachers? A majority of teachers and their supervisors desired training to be compulsory followed by voluntary. A very small number of them felt that only new teachers should be exposed to the training (Table 2).

**Table 2 - Teachers' and Supervisors' views on nature of training**

Options	Frequency	
	Teachers (N-73)	Supervisors (N-23)
1. It should be compulsory for all teachers	27 (36.92%)	13 (56.52%)
2. It should be voluntary for teachers	26 (35.61%)	5 (21.73%)
3. Only new teachers should be exposed	12 (16.43%)	3 (13.04%)
4. Voluntary for old teachers and compulsory for new ones	8 (10.95%)	2 (8.69%)

(c) *Period/season of organising training*: Teachers in SAUs are quite busy during the semesters. Thus, it is essential to know whether such training should be held on weekends only, or for a specific period at a stretch. A large majority of teachers and supervisors felt that the training should be organised for a specific duration at a stretch (Table 3) in order to facilitate the teacher's intensive involve-

ment. Besides, a majority of teachers and supervisors preferred winter break as the most suitable, followed by summer break; only a few made other choices (Table 4).

**Table 3 - Period/season of organising training**

Options	Frequency	
	Teachers	Supervisors
1. Organised on Saturdays and Sundays over a period of time	5 (6.84%)	2 (8.69%)
2. Organised for a specific duration at a stretch	68 (93.16%)	21 (91.21%)

**Table 4 - Time preference for the training to be conducted**

Options	Frequency	
	Teachers	Supervisors
1. During summer break	12 (20.54%)	3 (24.04%)
2. During winter break	43 (58.90%)	12 (52.17%)
3. In the beginning of semester	6 (8.21%)	3 (13.04%)
4. Others	9 (12.32%)	5 (21.73%)

A fortnight was suggested as suitable duration by the majority, and a week by others. A month was preferred by a few teachers only, while the supervisors had another option like shorter duration for old teachers and longer for new entrants to the profession (Table 5).

**Table 5 - Duration of training**

Option	Frequency	
	Teachers	Supervisors
1. A week	25 (32.24%)	7 (30.43%)
2. Fortnight	32 (43.48%)	12 (52.17%)
3. A month	9 (12.32%)	1 (4.34%)
4. Others	7 (9.60%)	3 (13.04%)

#### *Choice of Resource Persons*

Who will teach the teachers? It is not easy to keep the university teachers, experts in their own fields, involved with ordinary teaching skills. No doubt, only well prepared and those with excellent instructional competence and enthusiasm for teach-

ing can do justice. The majority of teachers and supervisors preferred faculty members from National Academy of Agricultural Research Management (NAARM) — on apex institution for training of SAU teachers, followed by successful teachers of the university and teachers of concerned social science departments of the university. Deans/Directors were put at the last place. (Table 6).

**Table 6 - Resource persons/trainers for training**

Options	Teachers		Supervisors	
	Mean score	Rank	Mean score	Rank
Faculty members from NAARM	3.19	1	3.69	1
Deans/Directors of our University	1.51	4	1.43	4
Successful teachers of our university	2.96	2	2.73	2
Teachers of concerned social sciences departments in the university	1.89	3	2.17	3

#### Size and Constitution of Training Group

What would be the appropriate size of the training group and what should be the nature of participants, homogenous or heterogenous? A large majority of teachers and supervisors preferred a group of 20 participants as ideal, followed by 21-30 persons (Table 7).

**Table 7 - Size of training group**

Options	Frequency	
	Teachers	Supervisors
1. Upto 20 persons	59 (80.82%)	12 (56.52%)
2. 21 to 30 persons	11 (15.06%)	8 (37.78%)
3. 31 to 40 persons	1 (1.36%)	3 (13.04%)
4. More than 40 persons	2 (2.73%)	-

As regards the background of participants, most of the teachers and supervisors suggested that persons from related disciplines in the group should be taken followed by those from the same cadres viz Assistant Professors/Associate Professors. This would facilitate dialogue on matters of common concern (Table 8).

**Table 8 - Constitution of training group**

Option	Frequency	
	Teachers	Supervisors
1. Same college	10 (13.69%)	3 (13.04%)
2. Same cadre	17 (23.28%)	3 (13.04%)
3. Related disciplines only	34 (46.57%)	9 (39.13%)
4. Others	12 (16.43%)	8 (34.78%)

#### Interval of Retraining

In view of the magnitude of the task of training and the large number of teachers to be trained, the majority of teachers felt three to six years interval as ideal followed by every alternate year, every year, and every two years. However, supervisors put every year at the second place, followed by every alternate year, and every two years (Table 9).

**Table 9 - Interval of retraining**

Options	Frequency	
	Teachers	Supervisors
1. Every year	12 (16.44%)	7 (30.43%)
2. Every alternate year	14 (19.17%)	5 (21.73%)
3. Every two years	15 (20.55%)	5 (21.73%)
4. Three to six years	32 (43.83%)	6 (26.08%)

#### Training Methods

Teachers' preference for various training methods to be used indicated that group discussion was the most preferred method, followed by lecture, demonstration, seminar, case study, panel discussion, field trips, role play and games (Table 10).

**Table 10 - Training methods suggested**

Methods	Teachers	
	Mean score	Rank
Lecture	7.31	2
Group discussion	7.79	1
Case study	6.58	5
Demonstration	7.16	3
Panel discussion	6.52	6
Seminar	6.86	4
Field trips	5.04	7
Games	2.83	9
Role play	3.04	8

### Follow-up support desired

Training to be effective requires appropriate follow up support after completion of training. What can be the most appropriate follow up method for teachers? In the opinion of the teachers, periodic meetings of trained teachers would be the most appropriate to keep up the interest, followed by regular seminars on teaching related topics. Publication of teaching newsletter and supply of literature or resource material were suggested as alternatives in the second place. Supervisors however, liked periodic meetings most, followed on close heels by regular seminars on teaching related topics, supply of literature and publication of newsletter (Table 11).

**Table 11 - Type of follow-up support desired**

Options	Teachers		Supervisors	
	Mean score	Rank	Mean score	Rank
Periodic meetings among trained teachers	2.50	1	2.69	1
Publication of teaching newsletter	1.96	2	2.13	4
Supply of literature/resource materials	1.96	2	2.26	3
Regular seminar on teaching related topics by trained teachers	2.50	1	2.65	2

Training alone, once in two-three years, probably is not enough to inculcate professionalism among teachers. Thus, alternative means to support training must also be explored in order to enhance teachers' competence on continuous basis. In view of the growing interest in educational technology and growth of communication media, many opportunities of individual learning also exist today. In the opinion of the teachers 'association with successful teachers' was preferred at the first place, followed by self learning video and subscription to journals focused on teaching related items. Organization of forum for trained teachers, membership of professional societies and diploma course in educational technology were placed at the last three places in order of preference. However, the supervisors preferred self learning audio video most, followed by organization of teachers' forum, association with successful teachers and subscription to journals. Membership of professional societies and diploma course in educational technology were the

last two choices, (Table 12).

**Table 12 - Alternative means to support training**

Options	Teachers		Supervisors	
	Mean score	Rank	Mean score	Rank
Organisation of forums for trained and interested teachers	2.55	4	3.17	2
Membership of professional societies of educational technology	2.11	5	2.65	5
Diploma course in educational technology	2.03	6	2.04	6
Subscription to journals focused on teaching related items	2.75	3	2.69	4
Self learning audio/video	3.00	2	3.26	1
Association with successful teachers	3.02	1	2.73	3

### Conclusion and Implications

It was suggested by teachers and supervisors both that training of agricultural universities teachers should be compulsory and retraining should be done every third or fourth year. Winter break was perceived as ideal time period when training could be organised at a stretch for a fortnight or a week. Scientists of National Academy of Agricultural Research and Management (NAARM), Hyderabad, and successful teachers were preferred as resource persons. Groups of participants, numbering from 20 to 30, belonging to related disciplines would be appropriate for creating conducive climate of training. Teachers should be taught through group discussion and course-manual should be provided to them. Periodic meeting among trained teachers would be a good follow-up measure and self-learning instructional materials as a good learning support to participants.

Who will teach the teachers and how? Suggestions of teachers and supervisors are some indication that at least one exposure in educational technology for a fortnight is a must but it should be done professionally to demonstrate the imitable skills and provide opportunities for adequate practices. Well designed course materials and follow-up in

(Contd. on page 15)



# The Hundred Most Influential Books Since the War

Most people enjoy making lists. But who would produce a list of "A hundred books which have influenced Western public discourse since the Second World War"? A brief explanation is called for.

In 1986, a diverse group of writers and scholars came together to try to assist independent East European writers and publishers both at home and in exile. The Chairman was Lord Dahrendorf, Warden of St Antony's College, Oxford. Other members were the French historian Francois Furet; Raymond Georis, Director of the European Cultural Foundation, Amsterdam; Laurens van Krevelen of the Dutch publishing house Meulenhoff; the Swedish writer Per Westberg, at the time President of International PEN; the European correspondent of the *New Yorker*, Jane Kramer; and the historian and commentator, Timothy Garton Ash. It was envisaged that support would take two forms: first, to ensure publication in the original languages, and second, to encourage more translations

One of the basic tenets of this initiative, which came to be known as the Central and East European Publishing Project (CEEPP), was that the geopolitical division of Europe — the Iron Curtain was then still very much a reality — had interrupted the normal and healthy flow not just of people but also of books and ideas. Its aim, in the words of Ralf Dahrendorf, was to foster a "common market of the mind" throughout the whole of Europe. After 1989, CEEPP was able to expand its activities and organize workshops and in-house training for those involved in publishing, but its main concern remained to facilitate the publication of worthwhile books and journals.

At Trustees' meetings, titles submitted by publishers for consideration were scrutinized for their quality and relevance. Not surprisingly, there were, among the Orwells, Poppers and Hannah Arendts, some very odd works, and also some strange omissions. Inspired and provoked by the perusal of these lists over the years, the Trustees decided that in their final year of activity (the Project disbanded at the end of 1994) they would respond to the challenge of producing, as a *jeu d'esprit*, a consciously arbitrary list of the 100 books which have been most influential in the West since 1945. (This list is included in the forthcoming book, *Freedom for Publishing. Publishing for Freedom: The Central and East*

*European Publishing Project*, edited by Timothy Garton Ash 201pp. Budapest. CEU Press; distributed in the UK by OUP. 1 85866 055 6.)

An initial list was put together by a small panel consisting of Robert Cassen, Dahrendorf, Garton Ash, Michael Ignatieff, Leszek Kolakowski and Bryan Magee. It was then revised, following an extensive discussion at the last meeting of CEEPP Trustees. Works of fiction are included only when they had a wider impact. Titles are grouped in decades by the date of their first appearance. In all cases, the English title is mentioned first and the original title in brackets. Within decades the order is alphabetical.

Certain seminal works which were published before the Second World War but which have had a major influence since the war were set aside. That list would certainly include:

- Karl Barth: *Credo*
- Marc Bloch: *Feudal Society* (*La Societe feodale*)
- Martin Buber: *I and Thou* (*Ich und Du*)
- Norbert Elias: *The Civilizing Process* (*Über den Prozess der Zivilisation*)
- Sigmund Freud: *Civilization and Its Discontents* (*Das Unbehagen in der Kultur*)
- Elie Halevy: *The Era of Tyrannies: Essays on socialism and war* (*L'Ere des tyrannies: Etudes sur le socialisme et la guerre*)
- Martin Heidegger: *Being and Time* (*Sein und Zeit*)
- Johan Huizinga: *The Waning of the Middle Ages* (*Herfsttij der Middeleeuwen*)
- Aldous Huxley: *Brave New World*
- Franz Kafka: *The Castle* (*Das Schloss*)
- John Maynard Keynes: *The Economic Consequences of the Peace*
- John Maynard Keynes: *The General Theory of Employment, Interest and Money*
- Lewis Namier: *The Structure of Politics at the Accession of George III*
- Jose Ortega y Gasset: *The Revolt of the Masses* (*La Rebelion de las masas*)
- Karl Popper: *The Logic of Scientific Discovery* (*Logik der Forschung*)
- Ludwig Wittgenstein: *Tractatus logico-philosophicus* (*Logisch-Philosophische Abhandlung*)

The final list was:

#### Books of the 1940s

1. Simone de Beauvoir: *The Second Sex* (Le Deuxieme Sexe)
2. Marc Bloch: *The Historian's Craft* (Apologie pour l'histoire, ou, Metier d'historien)
3. Fernand Braudel: *The Mediterranean and the Mediterranean World in the Age of Philip II* (La Mediterranee et le monde mediterraneen a l'epoque de Philippe II)
4. James Burnham: *The Managerial Revolution*
5. Albert Camus: *The Myth of Sisyphus* (Le Mythe de Sisyphe)
6. Albert Camus: *The Outsider* (L'Etranger)
7. R.G. Collingwood: *The Idea of History*
8. Erich Fromm: *The Fear of Freedom* (Die Furcht vor der Freiheit)
9. Max Horkheimer and Theodor W. Adorno: *Dialectic of Enlightenment* (Dialektik der Aufklarung)
10. Karl Jaspers: *The Perennial Scope of Philosophy* (Der philosophische Glaube)
11. Arthur Koestler: *Darkness at Noon*
12. Andre Malraux: *Man's Fate* (La Condition humaine)
13. Franz Neumann: *Behemoth. The structure and practice of National Socialism*
14. George Orwell: *Animal Farm*
15. George Orwell: *Nineteen Eighty-four*
16. Karl Polanyi: *The Great Transformation*
17. Karl Popper: *The Open Society and Its Enemies*
18. Paul Samuelson: *Economics An introductory analysis*
19. Jean-Paul Sartre: *Existentialism and Humanism* (L'Existentialisme est un humanisme)
20. Joseph Schumpeter: *Capitalism, Socialism and Democracy*
21. Martin Wright: *Power Politics*

#### Books of the 1950s

22. Hannah Arendt: *The Origins of Totalitarianism*
23. Raymond Aron: *The Opium of the Intellectuals* (L'Opium des intellectuels)
24. Kenneth Arrow: *Social Choice and Individual Values*
25. Roland Barthes: *Mythologies*
26. Winston Churchill: *The Second World War*
27. Norman Cohn: *The Pursuit of the Millennium*
28. Milovan Djilas: *The New Class: An analysis of the Communist system*

29. Mircea Eliade: *Images and Symbols* (Images et symboles)
30. Erik Erikson: *Young Man Luther: A study in psychoanalysis and history*
31. Lucien Febvre: *The Struggle for History* (Combat pour l'histoire)
32. John Kenneth Galbraith: *The Affluent Society*
33. Erving Goffman: *The Presentation of Self in Everyday Life*
34. Arthur Koestler and Richard Crossman (eds): *The God That Failed: Six studies in Communism*
35. Primo Levi: *If This Is a Man* (Se questo e un uomo)
36. Claude Levi-Strauss: *A World on the Wane* (Tristes tropiques)
37. Czeslaw Milosz: *The Captive Mind* (Zniewolony umysl)
38. Boris Pasternak: *Doctor Zhivago*
39. David Riesman: *The Lonely Crowd*
40. Herbert Simon: *Models of Man, Social and Rational*
41. C.P. Snow: *The Two Cultures and the Scientific Revolution*
42. Leo Strauss: *Natural Right and History*
43. J.L. Talmon: *The Origins of Totalitarian Democracy*
44. A.J.P. Taylor: *The Struggle for Mastery in Europe*
45. Arnold Toynbee: *A Study of History*
46. Karl Wittfogel: *Oriental Despotism A comparative study of total power*
47. Ludwig Wittgenstein: *Philosophical Investigations* (Philosophische Untersuchungen)

#### Books of the 1960s

48. Hannah Arendt: *Eichmann in Jerusalem A report on the banality of evil*
49. Daniel Bell: *The End of Ideology*
50. Isaiah Berlin: *Four Essays on Liberty*
51. Albert Camus: *Notebooks 1935-1951 (Carnets)*
52. Elias Canetti: *Crowds and Power* (Masse und Macht)
53. Robert Dahl: *Who Governs?: Democracy and power in an American city*
54. Mary Douglas: *Purity and Danger*
55. Erik Erikson: *Gandhi's Truth: On the origins of militant nonviolence*
56. Michel Foucault: *Madness and civilization: A history of insanity in the Age of Reason* (Histoire de la folie a l'age classique)
57. Milton Friedman: *Capitalism and Freedom*

58. Alexander Gerschenkron: *Economic Backwardness in Historical Perspective*
59. Antonio Gramsci: *Prison Notebooks* (Quaderni del carcere)
60. H.L.A. Hart: *The Concept of Law*
61. Friedrich von Hayek: *The Constitution of Liberty* (Die Verfassung der Freiheit)
62. Jane Jacobs: *The Death and Life of Great American Cities*
63. Carl Gustav Jung: *Memories, Dreams, Reflections* (Erinnerungen, Traume, Gedanken)
64. Thomas Kuhn: *The Structure of Scientific Revolutions*
65. Emmanuel Le Roy Ladurie: *The Peasants of Languedoc* (Les Paysans de Languedoc)
66. Claude Levi-Strauss: *The Savage Mind* (Le Pensee sauvage)
67. Konrad Lorenz: *On Aggression* (Das sogenannte Bose)
68. Thomas Schelling: *The Strategy of Conflict*
69. Fritz Stern: *The Politics of Cultural Despair*
70. E.P. Thompson: *The Making of the English Working Class*
89. Karl Dietrich Bracher: *The Totalitarian Experience* (Die totalitare Erfahrung)
90. John Eatwell, Murray Milgate and Peter Newman (eds): *The New Palgrave: The world of economics*
91. Ernest Gellner: *Nations and Nationalism*
92. Vaclav Havel: *Living in Truth*
93. Stephen Hawking: *A Brief History of Time*
94. Paul Kennedy: *The Rise and Fall of the Great Powers*
95. Milan Kundera: *The Book of Laughter and Forgetting*
96. Primo Levi: *The Drowned and the Saved* (I sommersi e i salvati)
97. Roger Penrose: *The Emperor's New Mind: Concerning computers, minds, and the laws of physics*
98. Richard Rorty: *Philosophy and the Mirror of Nature*
99. Amartya Sen: *Resources, Values and Development*
100. Michael Walzer: *Spheres of Justice*

[Courtesy Times Literary Supplement, 6 October, 1995]

## Training of Agricultural University Teachers in Educational Technology

(Contd from page 12)

71. Daniel Bell: *The Cultural Contradictions of Capitalism*
  72. Isaiah Berlin: *Russian Thinkers*
  73. Ronald Dworkin: *Taking Rights Seriously*
  74. Clifford Geertz: *The Interpretation of Cultures*
  75. Albert Hirschman: *Exit, Voice, and Loyalty*
  76. Leszek Kolakowski: *Main Currents of Marxism* (Glowne nurty marksizmu)
  77. Hans Kung: *On Being a Christian* (Christ Sein)
  78. Robert Nozick: *Anarchy, State and Utopia*
  79. John Rawls: *A Theory of Justice*
  80. Gershom Scholem: *The Messianic Idea in Judaism, and other essays on Jewish spirituality*
  81. Ernst Friedrich Schumacher: *Small Is Beautiful*
  82. Tibor Scitovsky: *The Joyless Economy*
  83. Quentin Skinner: *The Foundations of Modern Political Thought*
  84. Alexander Solzhenitsyn: *The Gulag Archipelago*
  85. Keith Thomas: *Religion and the Decline of Magic*
- Books of the 1970s**
86. Raymond Aron: *Memoirs* (Memoires)
  87. Peter Berger: *The Capitalist Revolution. Fifty propositions about prosperity, equality and liberty*
  88. Norberto Bobbio: *The Future of Democracy* (Il futuro della democrazia)

the form of periodic meetings would reinforce the newly learnt skills. Above all, training and change process have to be integrated. Teachers must be prepared and motivated ahead of time to attend the training. Unmotivated teachers will only fill the quorum and nothing more should be expected. Similarly, trainees, curriculum and plan of delivery must be rooted in the ground realities of in-house problems and resources. Trainers must work hand in glove with the participants and their supervisors to design, implement, evaluate and follow up a realistic training. However, it must be said that training is no panacea for organisational ills and teaching will not improve simply by organising in-service training. People will apply newly learnt skills only if there is provision for reward and check. Facilitating quality teaching would require monitoring and recognition of good teachers by differentiating between good and bad teachers objectively.

### References

1. Kuboni, O. 1993. Teachers' treatment of content in the design of instructional materials. *Educational Technology*, 23(1) 38-43 Pp
2. Lee, I.S. and Reiguleth, C.M. 1994. Empowering teachers for new roles in a new educational system. *Educational Technology*, 23 (1), 61-71 Pp

### 83rd Indian Science Congress A Report

The Punjabi University, Patiala, hosted the 83rd Indian Science Congress. The focal theme of the Congress was "Science and Technology for Achieving Food, Economic and Health Security".

The Prime Minister, Mr. P.V. Narasimha Rao, in his faxed inaugural address, called upon scientists to start planning for scientific management of the natural resources, agriculture and environment, and ensure that technology was not only cost-effective but also compatible with local practices, traditions and materials.

Mr Rao emphasised the need of tapping the huge human resource base. "India, compared to many other countries, has a youthful population which has high expectations, and whose energies need to be channelised in creative ways. Science and technology has to reach out to them. It has to help in providing adequate nutrition and a healthy environment and empower them to become active participants in the growth process".

The Prime Minister said the government had been giving top priority to the development of science and technology in India. From a total allocation of Rs 20 crore in the First Plan, the total Plan and non-Plan allocation had increased to Rs 18,110 crore in the Eighth Plan. An impressive research and development infrastructure had been developed in the country.

He called upon the industry to participate in the development of science and technology.

Mr Narasimha Rao urged the science congress to take stock of what had been achieved in the country in science and technology during the past 40 years. What still remained to be done and where the country needed to reorient the priorities to achieve the goals of food, economic and health security.

He commended the scientists' achievements in space, particularly in harnessing INSAT satellites for distance education and development purposes at the micro level. The IRS satellites had become the mainstay of the national natural resource management system, and remote sensing capabilities were being applied in such critical areas as agriculture and soils, bio-resources and environment, geology and mineral resources, water and ocean resources.

He warned against complacency in agricultural development, where the nation had become self-reliant, and had built up a buffer stock of over 30 million tonnes. Still foodgrain productivity in India was just 1.6 tonnes per hectare as against the world average of 2.6 tonnes.

"India ranks low down in the average yield of rice, wheat, cereals and soyabean. The task before Indian science and technology is therefore self-evident. In fact, given the scarcity of land resources,

there is no choice but to achieve higher productivity, scientists need to concentrate on developing quality seeds of improved varieties and hybrids of different crops. The government is committed to giving full impetus to this sector. India has been able to develop hybrids for the first time, and accelerated programmes are under way in various other crops including vegetables."

The Prime Minister announced that a plant variety protection board would be set up to provide protection to innovations by plant breeders.

He called upon scientists for a judicious mix of the high technologies with traditional practices, particularly for small agricultural plots and for sustainable development.

Efforts also needed to be made to increase availability of water for animals.

The country needed relatively simple processing technologies like pre-cooling units, packaging, controlled atmosphere storage and transport containers. "If efforts are made in developing and deploying these technologies with the participation of industry, users and government agencies, this will enhance the prosperity of the agricultural sector," he pointed out.

Emphasising the need of achieving higher per capita levels of consumption, he called for accelerating the pace of plant breeding and identifying new sources of food and new technology for its retrieval.

"Great responsibility rests,

particularly on bio-technologists, space scientists and ocean experts. India has recently taken the initiative in sending the first-ever expedition to Antarctica to exclusively conduct a survey of the availability of Krill resources, which are rich in proteins, for possible commercial exploitation," he stressed.

On economic security, the Prime Minister said the government's role was in balancing competing demands and to provide an environment which was conducive to economic and social development that is sustainable, efficient and equitable.

Regretting that more than 70 per cent of the patent applications in India were filed by foreigners, Mr Narasimha Rao said it was an unfortunate situation, and an issue which must be addressed collectively by research and development institutions, industry and the government. The scientists should also address themselves to the requirements of competition as a result of globalisation.

Doctors and scientists should also find solutions to the problems created by the spread of several non-communicable diseases like diseases of the cardio-vascular system, nervous system, cancer, diabetes and other disabilities of old age. He commended the efforts made in the field of communicable diseases and stressed the need for strengthening the Indian systems of medicine and exploiting medicinal plants and herbs.

He expressed the hope that the proposed amendments in the Indian patent laws in the post-GATT era would give the required fillip to Indian scientists as well as to the pharmaceutical

industry so that the country could play a leading role in the global research and development arena.

Commending the role played by Punjab in the freedom movement and also in the sphere of scientific development, he said the focal theme of the Congress was all the more appropriate in the context of Punjab, which had led the country in green revolution.

Prof U R. Rao in his presidential address said the holding of the science congress every year had played a pivotal role in demystifying science and promoting awareness among common people

Touching on the focal theme of the congress, Prof Rao said selection of food, economic and health security as the theme reflected the great concern and resolve to face the most formidable challenge of meeting the basic necessities of life for present as well as the future generations of this country.

He said because of the green revolution production of food-grains had gone up from 55 million to 180 million tonnes. But most alarming was the fact that the foodgrain production seemed to have almost reached a plateau. In spite of revolution, the agriculture production per acre was the lowest. Rapid deforestation over the years due to pressure of population and increased industrialisation had reduced the total forest cover to just 20 per cent of the land area. Much was needed to be done for further boosting the agriculture production and to save the flora and fauna.

He said population pressure on the country was making all development made in various fields meaningless. Explosive

population growth in the urban areas having poor infrastructure and sanitation had turned metropolitan cities into mega-slums. Owing to these reasons, the urban areas had become the main source of the spread of epidemics.

The solution to provide food, economic and health security to meet the growing demands of increasing population with limited land resources, lay in the adoption of a holistic approach for achieving environment-friendly, sustainable development. Wonderful results could be achieved by restructuring public expenditure

"The vision of future India will only depend on the recognition that science and technology is God's greatest gift to humanity, next only to life itself, and it is through proper application of these, that we can initiate sustainable integrated development to ensure food, economic and health security to all the people in the country," Prof Rao asserted.

Emphasising the need of having a fresh look at policy issues, he observed. "If India does not want to continue to be marginalised in the world, it is obvious that we have to appreciate the critical role of science and technology and create a conducive atmosphere for its rapid development and large-scale application, based on objective, critical and long-term cost-benefit evaluation.

"When short-term vested interests are replaced by long-term commitments, paper-pushing bureaucracy is converted into result-oriented karmayogis. The meek and silent common man asserts himself to make leaders accountable instead of accepting calamities as a fait accompli and

acts of God," he pointed out.

Dr. Rao said achievement of balanced development would remain a myth unless the developing countries, still residing on the periphery of the so-called global village, became a part of its mainstream

"Intensive use of chemical fertilisers and pesticides combined with poor management of watersheds has resulted in severe water stress, pesticide contamination of water and agricultural products in addition to unacceptable degradation of soil, resulting in disruption of eco-systems over large areas. Water and soil erosion have affected almost 40 per cent of agricultural land" he pointed out.

Pleading for changes in Plan allocation priorities, Dr Rao observed that the outlay on scientific research, which alone could create the necessary technical manpower, continued at a meagre level of less than 1 per cent of the GDP, which was hardly conducive to the creation of a technological society.

Dr Rao made 14 recommendations in his presidential address. Among these were the need to initiate immediate measures for conservation of top-soil, water forest and other natural resources for improved agricultural productivity, environmental protection and preservation of bio-diversity, promoting optimal exploitation of marine fisheries as well as inland fisheries, high priority to equitable food distribution, resorting to subsidies only when essential.

Dr Rao also suggested that all the resources should be pooled under the multitude of rural de-

velopment programmes under a single accountable authority to implement integrated development strategies at each watershed level in every district. Massive efforts should be initiated to eradicate illiteracy, particularly female illiteracy, using conventional as well as satellite-based distance-education facilities.

The Punjab Governor, Lt-Gen B.K.N. Chhibber, said scientific enquiry was a continuous process which has led to modern methodology of research. He commended the focal theme of the Congress.

Punjab Chief Minister Mr. H S. Brar, who inaugurated the Congress, commended the focal theme, and described it as most appropriate. He thanked the Indian Science Congress Association for holding the session in Punjab.

Mr Brar expressed the view that the wheat-rice pattern of growing was not going to lead the farmer any further. What was needed was diversification to oil-seeds, cash crops, fish farming, floriculture, horticulture and other crops. He also stressed the need for setting up heavy industry in Punjab.

The Union Minister for External Affairs Mr. Pranab Mukherjee in his address deplored the "concerted efforts" by the developed nations to deny access to the developing countries in the high-tech sectors and said "such restrictions are all too evident in nuclear and space areas"

He observed in the context of technology transfer that access to even *bonafide* civilian technologies was denied because of their alleged military potential.

Mr Mukherjee said, "While we stand for international cooperation, the country must be prepared also to stand on its own feet and to consolidate the indigenously developed technologies in civilian as well as in the defence areas."

Prof Joginder Singh Puar, Vice-Chancellor, Punjabi University and chairman of the organising committee of the Congress, in his welcome address, made a plea for establishing the Punjab chapter of the Indian Science Congress Association. He said that the scientists working in the universities and industries of Punjab, should work in tandem for setting up the Punjab Science Congress, to promote scientific temper and provide guidelines for the growth of science and technology in this area

Urging the Punjab Government to make a permanent budgetary provision for supporting the activities of the Punjab Science Congress, Prof Puar said that this would help spread awareness among the people of Punjab besides attracting students from rural areas to the field of science and technology

At the inaugural function, General Chhibber presented awards to seven distinguished scientists : Prof C.N. Rao got the Asutosh Mookerjee Memorial Award. Prof C.N. Rao is president of the Jawaharlal Nehru Centre for Advanced Scientific Research, Prof Virendra Singh, Director of Indian Institute of Fundamental Research, Bombay, got the C.V. Raman Award; Prof C S Seshadri, Dean of School of Mathematics, Spic Science Foundation (Madras) was conferred the Srinivasa Ramanujan Award; Prof Govind Swarup of National



Centre for Radio Astrophysics, Pune was presented the M.N. Saha Centenary Award; Prof C.R. Rao, Professor of Statistics, Pennsylvania State University (USA) got the P.C. Mahalanobis Award; Prof S.C. Maheshwari, Head of the Department of Plant Molecular Biology, University of Delhi - J.C Bose Memorial Award, Prof M.M. Sharma, Director, Department of Chemical Technology, Bombay University, - P C. Ray Memorial Award. All the awards are for 1995-96

The Union Minister, Dr Pranab Kumar Mukherjee, and renowned scientist Dr T N Khoshoo would get the Jawaharlal Nehru Award.

The Governor also released a book on the focal theme of the Congress on the occasion

Prof V S Ramamurty, Secretary, Department of Science and Technology, announced an annual two hundred crore fund for technology development and application by medium scale industry. An independent technology development board operating under the Department of Science and Technology would directly operate the fund to facilitate quick access by entrepreneurs, he added. Prof Ramamurty was releasing the report of the inter-ministerial task force on the recommendations of 82nd session of the Indian Science Congress held in Calcutta.

He said the fund would be drawn from the five per cent cess on technology imports and will be used as venture capital to support medium scale entrepreneurs. So far the fund had been with Ministry of Finance and various bureaucratic hurdles had come in the way of disbursement of funds

resulting in stultifying of medium scale industry.

The new initiative represents an entry of the department of science and technology (DST) in the area of industry in an attempt to make it competitive in the global market with better products

A technology information forecasting and assessment council (TIFAC) has been set up in the DST with the main objective of examining and evaluating the existing state of art technology and direction of future technological development in various cross sectoral areas. The TIFAC will also assess other sectors of the economy and prepare technology forecasting reports covering longer periods specially of production areas besides projecting estimates of the nature and quantum of likely demands for goods and services.

TIFAC has already initiated several activities like generation of technologies forecasting and assessment documents in various areas some of which are available on-line through nationally accessible information systems. Special training on technical skill formation in different trades is provided to various categories of people both in rural and urban areas under the national science and technology entrepreneurship development board (NSTEDB) under the DST.

More than 45,000 jobs have so far been created through the activity which is being implemented with the help of academic institutions, voluntary agencies and district level agencies in almost all parts of the country, Prof Ramamurty said

The NSTEDB initiative follows a recommendation made by

the Prime Minister that technicians and highly skilled craftsmen be turned out in adequate numbers to transform concepts, drawings and designs into manufactured products. One of the major objectives of the NSTEDB is to promote interaction between academics, research and industry and accordingly the board has established entrepreneurship development cells in academic institutions.

The cells are being established in engineering colleges and universities which act as multi disciplinary centres for institutionalising entrepreneurship in the engineering and technology curricula and for promotion of entrepreneurship among science and technology students as an alternate vocation.

Science and technology entrepreneurship parks (STEPS) are now being established in and around academic institutions based on models developed abroad to establish close links between academic research and industry

Financial support for STEPS comes from the DST, Industrial Development Bank of India, Industrial Finance Corporation of India, Industrial Credit and Investment Corporation of India and concerned state governments

The environmental and bio-scientists attending the Congress laid stress on increasing the forest land to save the environment and provide food, economy and health security to the masses, which was the focal theme at the second day's session

In his presidential address on 'Dilemma of environmental scientists', Prof SC Pandey, the sectional president Botany, said the

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# SPREADSHEET

## ENROLMENT IN EDUCATIONAL INSTITUTIONS IN INDIA (1)

Enrolment Stages — 1993-94  
(As on 30th Sept. 1993)

S.No	State/U.Ts	Primary			Middle			SEC/HR.SEC			HR. Education		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1	Andhra Pradesh	4670000	3840000	8510000	1631000	1128000	2759000	1028953	558617	1587570	183010	77675	260685
2	Arunachal Pradesh	74222	56199	130421	19514	14139	33653	12719	7260	19979	2241	573	2814
3	Assam	1987299	1764596	3751895	747208	519478	1266686	432427	306282	738709	99016	45217	144233
4	Bihar	5854713	3045027	8899740	1576661	644058	2220719	1034134	272035	1306169	401154	94041	495195
5	Goa	69000	63372	132372	42039	35913	77952	34484	31006	65490	7020	7868	14888
6	Gujarat	3406339	2576579	5982918	1224325	770906	1995231	867000	574200	1441200	226900	165450	392350
7	Haryana	1260000	1023000	2283000	516000	347000	863000	341190	177518	518708	71162	43452	114614
8	Himachal Pradesh	378900	333580	712480	219720	171680	391400	136340	82750	219090	16703	7701	24404
9	Jammu & Kashmir	480039	319414	799453	210115	121392	331507	117436	57560	174996	25458	15105	40563
10	Karnataka	3266851	2852807	6119658	1106714	830594	1937308	912832	511252	1424084	219526	107763	327289
11	Kerala	1549805	1469380	3019185	976737	929962	1906699	581242	607739	1188981	60241	64325	124566
12	Madhya Pradesh	5242000	3798000	9040000	2049000	1154000	3203000	700175	261530	961705	176466	72827	249293
13	Maharashtra	5854301	5102918	10957219	2392087	1810166	4202253	1878630	1149435	3028065	509531	262524	772055
14	Manipur	127740	113760	241500	53150	45250	98400	39974	31080	71054	12309	9584	21893
15	Meghalaya	91269	84385	175654	28558	26233	54791	19609	17207	36816	4770	3222	7992
16	Mizoram	60874	54795	115669	30063	26734	56797	11613	11144	22757	2791	1567	4358
17	Nagaland	83779	74321	158100	31829	30136	61965	15155	11696	26851	2209	1110	3319
18	Orissa	2267000	1575000	3842000	730000	529000	1259000	685000	344000	1029000	75629	28725	104354
19	Punjab	1110047	956687	2066734	509397	401315	910712	386717	292395	679112	65147	72185	137332
20	Rajasthan	3683000	1775000	5458000	1340000	464000	1804000	834000	192000	1026000	82476	36399	118875
21	Sikkim	40018	35135	75153	10737	10023	20760	6059	5088	11147	729	327	1056
22	Tamil Nadu	4229731	3791219	8020950	1986075	1548711	3534786	1118734	764170	1882904	128985	87348	216333
23	Tripura	219088	180991	400079	81112	60119	141231	42179	32044	74223	7378	4238	11616
24	Uttar Pradesh	9853898	6130820	15984718	3859216	1668192	5527408	2605712	830699	3436411	374282	119377	493659
25	West Bengal	5302000	4815000	10117000	2481000	2122000	4603000	1154126	727100	1881226	196157	134837	330994
26	A & N Islands	23257	21054	44311	10307	8875	19182	7010	5960	12970	903	784	1687
27	Chandigarh	31449	27786	59235	17479	15270	32749	14786	15184	29970	7099	6865	13964
28	D & N Haveli	11189	7501	18690	3036	1766	4802	1813	1163	2976	0	0	0
29	Daman & Diu	6845	6047	12892	3637	3042	6679	2687	2000	4687	513	312	825
30	Delhi	509247	447845	957092	292350	233063	525413	228050	175406	403456	79342	58068	137410
31	Lakshadweep	4763	4010	8773	2129	1544	3673	1083	745	1828	0	0	0
32	Pondicherry	55646	50002	105648	32204	28622	60826	21174	18336	39510	3626	2995	6621
INDIA		61804309	46396230	108200539	24213399	15701183	39914582	15273043	8074601	23347644	3042773	1532464	4575237

Source: Ministry of Human Resource Development, Annual Report 1994-95.

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resent environment policies of the government could be beneficial for bringing food, health and economic security temporarily but in the long run the country would have to suffer in a big way.

Dr Pandey said, the limited geographical area of our country was supporting a large human population and livestock. Our natural resources, giving out raw material as food, for our industry and all other activities were highly limited too. Considering agriculture as an industry, as on today, it was the cause of commissioning more forest land and was also causing climatic change and land degradation through soil pollution, he said.

He added that industries were using raw material much more than ought to be allowed under the concept of range of recovery or optimisation of use. They were indeed maximising the exploitation bringing about fast degradation of land to the point of more return or return with heavy energy input.

Dr Pandey said industries were mainly responsible for accelerating the pace of climatic change which in turn was depleting the natural resources.

He felt that globalisation, free trade and export-oriented multi-nationals would take away the country's natural resources at a faster speed, further accelerating the damages to "our natural resources".

It was the duty of environmental scientists not to stop development but to suggest sound optimisation methods to minimise environmental degradation for a harmonious world, he suggested.

Dr. Pandey said a dramatic escalation in carbon dioxide emissions in India was causing concern as it had increased by 5.9 per cent per year since 1950 and now India had climbed from 13th to 6th place for its national contribution in carbon dioxide emissions resulting the increase in air temperature, which was rising at the rate of 1.7 per cent per year.

He said, consequently, sea level was also rising at the rate of 1.7 to 5.2 mm per year, endangering the whole coastal areas. The methane content of Indian atmosphere was eating away its ozone layer.

Dr Pandey disclosed that several studies undertaken to know the climatic changes and their effects on vegetation revealed that radiations were damaging the crops like wheat, rice, soyabean, corns, etc.

8,000 institutions functioning under 200 universities were being brought under the Rennic project of the National Informatics Centre.

The major objective of Rennic or Research Education and Medical Institutions in the country was to set up a countrywide communication network through NICNET, the satellite based communication network. Access to NICNET for the national and INTERNET mail would be provided through satellite earth stations.

Prof Yash Pal, former Chairman, UGC, expressed the view that technology was a non-sustainable way of growth. Social betterment can infuse life to this dry term called "technology". Speaking on the topic "Technological vectors and human dynamics" during the plenary session on

the third day of the science congress, Prof Yash Pal said: "Technology does not move on its own. For its furtherance it is more important to invest in healthy human relationships and laughter".

Mr Y.S. Rajan, Advisor in the Union Department of Science and Technology, who spoke on 'Technology forecast to support national development' said: "Technology means actually doing and not just devouring theoretical literature. Continuous update for technology is done through forecasting and assessment. Revisiting the past is important for technological forecast and thus nation-building. This helped sugar technologies, advanced composites for defence and space research and development, fly ash utilisation and leather research".

Mr S P Godrej from Godrej Industries talked on the obligation to society for those occupying responsible positions in society. "Economic strength is important for gaining respect from the world," he said.

Prof (Ms) Usha Nayar, Head of the Department of Physiology, All-India Institute of Medical Sciences (New Delhi) in her address "Pain processing in the central nervous system" at the physiology section said before modern times, pain was considered a direct "offender", merely a source of suffering. "Pain is now considered a defender which, though unpleasant, allows physical integrity. One tries to identify and remove the responsible agent and consequently, soothe suffering."

International Association for the Study of Pain (IASP) has defined pain as "an unpleasant sensory and emotional experience associated with actual or poten-

tial tissue damage or described in terms of such damage."

According to Dr Nayar, although a direct relationship exists between the perception of pain and intensity of painful stimulus, this relationship can be highly variable, particularly in clinical situations. Pain was always subjective. The variability depends on peripheral nervous system and central nervous system (CNS) factors

On the aspect of pain measurement using animal models, Dr Nayar suggested that the manipulations with the laboratory animal must be "humane". But who was in a better situation to decide whether an experiment was humane or not, she asked.

Speaking at a plenary session on 'health security' Dr. N H. Antia, former member of the Planning Commission, deplored what he called the commercialisation of the health care system, to the detriment of the common man. He said it was rather unfortunate that human suffering was being turned into a big business, with both the medical professionals and the people getting marginalised in the process

He said it was also sad that the allocation of resources for health services was not equitable, in that for every rupee spent in the rural areas, five were spent in the urban centres, though it should be otherwise, considering the population distribution.

The rural health service was also suffering as while the private practitioners working there sought to treat every ailment by administering injections, the Government-run primary health centres were over-centralised and bureaucratised, with more of

vertical than horizontal programmes, when what was needed was provision of integrated and comprehensive health services in a decentralised manner.

He said what was immediately needed was to demystify medicine and treat health not as a medical problem, but as a social problem. Medical professionals should transfer knowledge to the people and enable them to take care of their own health. It must also be remembered that it was not how much one spent on medicine, but how it was spent, he added

Dr D. Balasubramanian, Director, Centre for Cellular and Molecular Biology, Hyderabad, said the health status of the country could be raised to a large extent by merely eradicating illiteracy, particularly among women.

There was also no need for any new research for many of the big killer diseases, as the remedies for them were already known and available. What was required was that they should be within the reach of the people.

In an address "Polyandry in the global context: stasis and transformation", Prof M K Raha, president of anthropology and archaeology section of the Congress, observed that the diversity of theories on the origin and development of polyandry reflected the diversity of the objective conditions in which the institution has developed in different communities

Plural marriage, which originated in remote areas, and still in existence in different parts of the world, was now proving incapable of withstanding the pressures of the modern world. Co-husbands were either straightaway

leaving the polyandrous union to form nuclear monogamous units or were marrying again within a polyandrous set-up, thus transforming the latter into polyandry as a transitional stage towards nuclear monogamy.

Women in their turn, like to have a single husband instead of multiple ones. Besides there were many more factors responsible for the breakdown or transformation of this unique form of marriage. Modern education, communication, new legislation preventing multiple marriages, activities of the political parties, impact of cash and market economy, opening of multifarious avenues of income, and more particularly, the influence of the people from non-polyandrous areas where monogamy is the rule, were responsible in various ways and degrees for the degeneration and change in the polyandrous system all over the world. Hence, the world was witnessing the disintegration or transformation of this unique human institution, he observed.

"With advanced countries looking at India as a potential competitor, the country will find it extremely difficult to get technologies from abroad. This was already evident in the case of defence and space and it would be extended soon to the civilian sectors as well" said Prof R.A. Mashelkar, Director-General of the Council of Scientific and Industrial Research (CSIR), in his lecture at the Indian Science Congress.

"India tomorrow is India of dreams," the CSIR chief said urging scientists to have a sustained commitment and world-class research and development. "There should not be any compromise on

this," he felt.

In the near future, western countries would treat trade policies as "competition" policies which had three essential components — a uniform intellectual property right, an environmental regulation and identical labour legislation all over the world.

According to Prof Mashelkar, unless India was technologically strong, the country would not be able to assume the role of a dominant partner in this rapidly-changing global economic scenario.

Expressing satisfaction that the Indian industry was slowly realising the importance of R and D, noted corporate houses were spending more on technology development.

For instance, he said in the Indian drug and pharmaceutical industry R and D expenditure had increased from a mere 1 per cent to a substantial 5 per cent in the past two to three years

Stressing the need for spelling out goals in all major areas of research like that was done in defence and space, Dr Mashelkar said self R and D financing through value-addition, partnership with industry and linking research to marketplace were very important for national laboratories.

Dr R.N. Sharma, chairman of Hindustan Aeronautics Limited (HAL), said the acceleration of industrial growth was not coming from foreign investment. This called for an urgent review of Indian developmental policies. It would also require a reform in bureaucracy, especially in the economic sector

Dr C.S. Ghokale, an expert in textiles, urged the government to

allow the corporate sector to enter cotton farming as Indian cotton productivity was very low.

Prof Menon quoted the Sony Corporation chairman to say that Japan's success on the industrial and technological front happened because technocrats and not bureaucrats ruled the roost in that country.

From the scientists' version of post-independence protectionism and the present policy of liberalisation, it would seem that too little is being done too late.

Prof C.N.R. Rao predicted that in another five years or so, the research work done at Indian universities would have ceased to have any relevance.

Indian science was lagging in all the frontline areas because of policies which had driven the best brains abroad and even now very little professional incentive for them to come back, Prof Rao said

Protected from competition, Indian industry had little incentive to innovate through investment in Research and Development (R and D) resulting in its own obsolescence and inefficiency on the one hand and lack of patronage for research on the other.

The week-long Congress, which was attended by about 3,000 scientists and technologists from various parts of the country and from different disciplines ended with a call to increase the allocation for R&D in science and technology from the present one per cent to three per cent, that of education from three per cent to nine per cent, and health care from two to six per cent of GDP. A resolution adopted to this effect by the Congress said this could be

easily achieved by reducing the allocation for communication, transport and energy sectors by introducing greater privatisation in them.

The Congress urged that it be made mandatory for industrial units to invest at least five per cent of their gross sales in R&D by providing appropriate incentives. Half of it should be through funded research in educational institutions and R&D centres of excellence.

The Congress also wanted R&D and other developmental programmes to be taken up, as far as possible, in a mission mode, setting up of a national food safety committee comprising scientists from medical, veterinary, and public health streams, to suggest measures for safe food quality assurance; and establishment of a central institute of psychological research to study the importance of psychoactive medication, efficacy of ayurved and other modes of treatment, problems of integrating the rural population into the national mainstream and other related social and psychological problems

Besides, the scientists and technologists called for research to evolve steps to mitigate the problem of environmental pollution; research on drug development, and drug delivery systems, particularly for those diseases for which effective cures were not available; and development of methods for prediction, monitoring, and management of extreme natural disasters such as flood, drought, and earthquakes.

They also urged UGC, DST, DAE and other appropriate agencies to take up a programme to identify at least 20 departments



and institutes of mathematics across the country to provide adequate support to S&T activities oriented to problems of food, health and economic security; and creation of a comprehensive statistical data base for demographic and health purposes, preferably using a computer network linking various hospitals and health care facilities.

The Congress also urged immediate measures to conserve top soil, water, forest, and other natural resources to improve agricultural productivity, environmental protection and preservation of biodiversity.

Among other things, the Congress called for optimal exploitation of marine and inland fisheries using inputs from space and biotechnology; encouragement for processing and preservation of vegetables and fruits at a low cost, rapid development of decentralised energy systems; and promotion of agrobased industries.

The Congress also sought accordance of high priority to equitable distribution of food, eradication of illiteracy and urged that subsidies should be given only when it was absolutely necessary like rehabilitation of disaster victims and that all the resources under the multitude of rural development programmes be pooled under a single accountable authority.

The Congress emphasised that sustainable integrated development strategies should be initiated at the microlevel of watersheds, based on characterisation, and repetitive monitoring of land and water resources, including meteorological parameters using space technology, vital inputs

from biotechnology, adoption of integrated pest management strategy and knowledge of socioeconomic as well as cultural factors to achieve increased agricultural productivity on a sustainable basis.

Dr S.K. Joshi, former Director-General, Council for Scientific and Industrial Research, will be the general president for the year 1996-97, and Dr P. Rama Rao, Director-General, Defence Research and Development Organisation, New Delhi, for the year 1997-98. The focal theme for 1996-97 will be "Frontiers in science and engineering and their relevance to national development". The focal theme for 1997-98 will be decided at the next congress.

### **Intervention for Social Transformation**

Mr. Sitaram Kesri, Union Minister for Social Welfare, called upon the budding social scientists to be vigilant about changes that were taking place in the society and give them a desirable direction. He was inaugurating a two-day workshop on 'Intervention for Social Transformation,' organised by the Tata Institute of Social Sciences students' forum 'Introspection 96' in Bombay recently. He said giving a desirable direction to social changes was possible by bending the force of change in favour of the traditional groups of the 'losers' — the economically deprived and so-

cially vulnerable section of the society.

The constitution had within itself an agenda for social transformation which would definitely provide a basis for transformative social policies, he said, but insisted that "transformations happen only when the people themselves understand their situations and develop methods of civil intervention to promote desirable changes and prevent undesirable changes."

He also stressed the need to promote those social and welfare policies that would protect the poor as they enter market economy

"The social and welfare policies should also aim at promoting their economic participation and social mobility, rather than treating them as permanent recipients of the governments' largesse or as populations permanently dependent on the government," he observed.

Mr. Kesri said reservation alone was not adequate and a much larger policy package for empowerment of the poor and the socially deprived and marginalised sections would have to be evolved and implemented.

In her keynote address at the workshop, Ms Sulabha Brahme, social activist from Pune, gave an historical perspective of the social changes that were being

### **DISPLAY OF PUBLICATIONS**

The Association of Indian Universities and 40 member Universities/Institutes are displaying their publications at the 12th New Delhi World Book Fair being held from February 3-11, 1996 at Pragati Maidan, New Delhi. All are welcome to visit the Stalls No. F 44-47 in Hall No. 1.



witnessed all over the world and said the people from various walks of life today challenged the entire western lifestyle, thoughts and ideologies.

Despite various forces working at different levels like market forces and religious forces, the willingness of the people to participate in the desirable changes was becoming more and more visible. Therefore, she told the participants to go along with the people so that the intervention could be understood for the better future of the mankind.

### **University-Industry Linkage**

A National Seminar on University-Industry Linkages was recently held at Birla Institute of Technology & Science, Pilani. Inaugurated by Dr. C.H. Krishnamurthi Rao, Chairman, Chemfab Group, Madras, the seminar was attended by about 40 eminent delegates from industrial houses, research & development organisations and educationists. The seminar had five technical sessions besides a poster presentation.

In the technical sessions more than 15 papers were presented giving case studies of University-Industry Linkages. The presentations made by Dr. Naidu of Software Technology Park, Bangalore on "Internet and its Capabilities" and Mr. S.C. Agarwal of Birla VXL Ltd. Jamnagar on "Technological Upgradation of Industry" called for closer collaboration between the industry, research organisations and universities to cater to the needs of future education and continuous upgradation of the human resources everywhere. The presentations also dwelt largely upon the mutual

benefits of such linkages to all participating organizations. The pioneering role of Birla Institute of Technology & Science, Pilani through its endeavours like Practice School, Distance Education and off-campus research was greatly appreciated.

The chairmen of the various technical sessions made significant suggestions for strengthening such linkages. Dr. Biswas, Director, CEERI while analyzing success of the BITS PS scheme suggested greater faculty interaction in Practice School activities to strengthen research perceptions, of the individual faculty members.

Dr. S. Venkateswaran, Director, BITS, in his concluding remarks, observed that with the liberalization of economy the role of Practice School and other University-Industry Linkages was changing and we should aim at development of newer technologies. The universities in general should examine and explore the participation of their faculty members in research and development schemes of all the industrial houses in particular.

### **Gender and Science & Technology Conference**

Ms Urmilaben Patel, Union Minister of State for Power, called for bringing about revolutionary changes in different spheres of life to ensure equal status to women in the male-dominated Indian society. She was speaking after inaugurating the eighth international gender and science and technology conference (GASAT) in Ahmedabad recently. She said that there was a misconception that women were inferior to men and they could not pursue science and technological

courses because the subjects were tough.

She, however, said this myth was breaking up since the results of various board examinations had shown that girl students had performed better among the first ten students. She suggested that women's organisations should be set up in rural areas to create awareness among women.

Ms Patel said that a silent revolution was now sweeping across the country wherein even poor parents were showing interest in imparting education to their daughters. She said this change in the social concept was to ensure that their daughters would get better partners and better job opportunities as well. But this was not enough, she said adding that women must be treated at par with men.

The Union Minister said that economic and political awareness could empower women. She said that India is the first country where 33 per cent reservation was given to women in local self-government bodies. She said that these socio-political changes in society would arouse confidence among women to take active part in science and technology.

Organised jointly by Science and Technology for Women and Children and GASAT, the six-day conference was attended by 240 delegates from 44 countries.

The participants included the president of Third World Academy of Women Scientists, Vice-Chancellor of Swaziland, Ms Ledia Makhale, Special Representative of the American Association of Advancement of Science, Ms. Luis Salicrup and Prof. Evin Sjoberg of Scandinavia.

## **Inter University National Youth Festival**

The eleventh Inter University National Youth Festival (IUNY-FEST) will be hosted by the Birla Institute of Technology, Mesra, Ranchi, from February 7 to 11, 1996. About one thousand selected university youth artists and official delegates are expected to participate in this annual Inter-Varsity Cultural bonanza which is jointly sponsored by the AIU & Deptt. of Youth Affairs & Sports, Govt. of India.

The IUNYFEST will include twenty one cultural events of music, dance, theatre, fine arts & literary activities. The selected participating artists have been invited from the recently concluded series of four Inter University Zonal Youth Festivals held at M S University of Boroda, Punjab Agricultural University, Ludhiana, L.N. Mithila University, Darbhanga and University of Madras, Madras.

Shri Laloo Prasad Yadav, Chief Minister, Bihar, will inaugurate the Youth Festival on February 7. It will be followed by the event, Light Vocal (Indian). Classical Vocal Solo, One Act Play, Debate and On the Spot Painting, and Poster Making Competitions will be held on 8th February. Classical Instrumental (Percussion & Non-percussion) Solo, Group Song (Indian & Western), Elocution, Skit, Clay Modelling Cartooning and Rangoli will be held on 9th February. Quiz, Western Vocal (Solo), Classical Dance, Folk/Tribal Dance, Mime and Collage are slated for the 10th February. Cultural Procession and Valedictory Function will be held on the 11 February.

Apart from promoting the

concept of National Integration, these Youth Meets have played a major role in inculcating in our youth a pride for Indian culture and values of amity, fraternity, comaraderie, adventure, peace and development. Nourishment and inculcation of such values would inspire them to combat regionalism, communalism, linguistic chauvinism and other social evils.

### **Workshop on Biological Techniques**

Prof S.P. Singh, Vice-Chancellor of the Lucknow University, inaugurated a seven-day national workshop on 'Biological Techniques and Specimen Preparation' in Lucknow recently. In his address Professor Singh congratulated the Department of Zoology, Lucknow University, for taking the lead in providing innovative techniques to the young graduates for self-employment. He also appreciated the decision of involving the bright students from all the associated degree colleges of the Lucknow University, in addition to the teachers, observers and scientists from the various institutes of the state capital.

Dr. G.G. Sanwal, Pro Vice-Chancellor, threw light on how various modern techniques in medicine, health-care, food, agriculture and forensic sciences could be used for self-employment.

The professor and Head of the Department of Zoology, Dr Bhoomitra Dev, emphasised how an academic balance could be established between elitism and marketisation, as higher education had to cater to both. He also said that new ideas for job-creation were needed instead of

opportunities for job-seeking.

Sponsored by University Grant Commission (UGC), the workshop was attended by senior teachers, delegates from Kerala, Karnataka, Orissa, Madhya Pradesh and UP.

### **India, UK Science Accord**

India and the United Kingdom recently signed an agreement to further co-operation in the field of science and technology. Under the agreement, scientific meetings between the two countries will be arranged besides exchange of information, visits and exchanges of scientists and starting of co-operative projects and programme in both the countries.

Detailed arrangements for implementation of these activities will be made by the department of science and technology and office of the science and technology, department of trade and industry, UK government.

The agreement was signed by Minister for Science and Technology Mr. Bhuvnesh Chaturvedi, and visiting British Secretary of State for Trade and Industry Mr. Ian Lang.

### **Janapada Parishat Recognised**

The Bangalore University has granted research centre status to the Karnataka Janapada Parishat at Ramanagara and it would now be possible to pursue the varsity's Ph.D at the Karnataka Janapada Parishat or Janapada Loka.

Mr. Nage Gowda, Parishat President said that the Parishat had the requisite infrastructure

for undertaking research. Bangalore University would invite applications for Ph.D. programme shortly. Ph.Ds would be awarded on topics like folk music, theatre, folklore museum and folk dance.

Certificate and diploma programmes were also proposed to be started shortly, he added. A training programme would be started shortly for about 100 people belonging to SC/ST under the Kannada and Culture Department for *Suggi Kunitha, Goravara Kunitha, Kolaata and Dollu Kunitha*

### **Vachaspati Puraskar 1995**

The Vachaspati Puraskar, instituted by the K K. Birla Foundation is given to honour a writer for his work in Sanskrit published during the last 10 years. Besides literary works, other works in Sanskrit as also the translations of works from other languages into Sanskrit are considered for this Puraskar

Pandit Amir Chand Shastri has been selected for the 1995 Vachaspati Puraskar for his work *Nehru Charit Mahakavyam* (published in 1993-94). It depicts in poetry Nehru's life based on his autobiography. The award carries a cash prize of Rs 50,000/-

Pandit Amir Chand Shastri is a great Sanskrit scholar and has been associated with important Sanskrit institutions of the country for a long time. His important works are *Geeti Kadambari, Saragharabhramabh, Prathvi Prashti, Shardulokridham, Gurumandalmandanam Charitamratsatyotram, Goswami-ganeshdatt Charitam, Madhava-charitam, etc.*

### **Project on Pilgrims**

The University Grants Commission (UGC) is reported to have commissioned a Rs 2.95 lakh re-

search project called, 'Pilgrim influx into Tirumala-Tirupati sacred complex — problems and perspectives,' to Dr V. Narayana Reddy, department of Anthropology, Sri Venkateswara University. The three-year project will highlight the nature and seasonal variation in pilgrim influx. It will also forecast the pilgrim population by the 21st century, and moot policies on developmental programmes. Under the same project,

an advanced research will be conducted in the field of anthropological religion.

### **We Congratulate .....**

**Prof. A. Gnanam, Vice-Chancellor, Pondicherry University, who has taken over as President of the Association of Indian Universities.**

## **News from UGC**

### **Countrywide Classroom Programme**

Between 8th February to 21st February, 1996 the following schedule of telecast on higher education through INSAT-ID under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 1.00 p.m. to 2.00 p.m. The programme is available on the TV Network throughout the country.

#### **1st Transmission**

**6.00 a.m. to 7.00 a.m**

#### **8.2.96**

"Copper Chemistry"

"Alampur through the Ages-Part I"

"Daughters of Eve-Part I"

#### **10.2.96**

"Starfinder-Part XI: Evolution of a Star"

"Understanding Creativity"

"Water Water Everywhere"

#### **11.2.96**

"Influx-A Student Affair"

"Guitar-The Versatile Instrument"

"The Week Ahead"

#### **13.2.96**

"Bookfare-Part VII: Popular Fiction"

"Tourism and Maps"

"Tuna: Lakshadweep's Big Catch"

#### **15.2.96**

"Copper: Occurrence and Mining"

"Alampur through Ages-Part II"

"Daughters of Eve-Part II"

#### **17.2.96**

"New Horizons"

"Starfinder-Part XII. Tapping the Sun's Power"

"Tulsi: From Worship to Cure"

#### **18.2.96**

"Indian Miniature Paintings"

"Current Affairs : Economics and Commerce -Part 14"

"The Week Ahead"

#### **20.2.96**

"Excitement of Pulsars - Part I"

"A talk with Mm. Paulin on Museum"

"Ayurveda-The Science of Life: An Introduction"

**Ind Transmission**  
**1.00 p.m. to 2.00 p.m**  
**8.2.96**  
 "New Horizons"  
 "Rasa Ranjita. Understanding Indian Dance-Part II: Kathakali"  
 "Electromagnetic Spectrum"  
**9.2.96**  
 "A Question of Proof"  
 "The Leather Story-Part 3: Time to Come"  
**10.2.96**  
 "Irshad Panjatan-Part I: The Pantomime"  
 "Perspectives on Mountain Tourism: Badrinath Zone - Part I: Tourism Resources"  
 "How to Face an Interview-Part I"  
 "Islamic Calligraphy through the Ages-Part I"  
**11.2.96**  
 No Telecast  
**12.2.96**  
 "The Week Ahead"  
 "Market Segmentation"  
 "Saga of Silk - Part 4: Silk Haute Couture"  
**13.2.96**  
 "Demonstration of Acetylation Process"  
 "Current Affairs. Economics and Commerce-Part 14"  
 "Perspectives on Medical Research"  
**14.2.96**  
 "Cricket"  
**15.2.96**  
 "Cricket"  
**16.2.96**  
 "Cricket"  
**17.2.96**  
 "Cricket"  
**18.2.96**  
 No Telecast  
**19.2.96**  
 "The Week Ahead"

"Question Time"  
 "Wooden Imprints: Block Printing"  
**20.2.96**  
 "Cricket"  
**21.2.96**  
 "Cricket"  
**Hindi Telecast**  
**प्रातः 6.00 से 6.30 बजे तक**  
**9.2.96**  
 "युगदृष्टा सुमन"

**12.2.96**  
 "स्नेह निर्झर बह गया है"  
**14.2.96**  
 "हिन्दुस्तानी गुलाब"  
**16.2.96**  
 "द्वाराहाट के प्राचीन मन्दिर"  
**19.2.96**  
 "ग्रंथालय और कम्प्यूटीकरण"  
**21.2.96**  
 "राग संगीत - भाग 1"



## Indira Gandhi National Open University

Schedule of Telecast for the period 1 February to 28 February, 1996  
 6.30 a.m. to 7.00 a.m.

Date	Academic Programme	Title
2 2 96 Friday	Management	Effective selling
5 2 96 Monday	Bachelor's Degree Programme	Pragati Sheel Sahitya Ka Uday
7 2 96 Wednesday	Nutrition and Health Education	Women & Employment
9 2 96 Friday	Management	Probability Fundamentals
12 2 96 Monday	Bachelor's Degree Programme	Religious Symbols
14 2 96 Wednesday	Computers in Office Management	Office and the Computer Pt I
16 2 96 Friday	Management	Accounting in Decision Making
19 2 96 Monday	Bachelor's Degree Programme	Presentation of Data
21 2 96 Wednesday	Computers in Office Management	1 Office and Computer Pt II 2 Computer Viruses
23 2 96 Friday	Management	Probability Applications
26 2 96 Monday	Bachelor's Degree Programme	Ankado Ki Prastuti
28 2 96 Wednesday	Distance Education	Distance Education Socioeconomic relevance

## BOOK REVIEW

### READER-FRIENDLY

N. Kumar\*

**Robert Gilmore. Alice in Quantum Land: An Allegory of Quantum Physics. New Delhi, Affiliated East-West Press, 1994. Pp. 208. Price not stated. (Paperback)**

Written in a reader-friendly allegorical mode, strongly reminiscent of George Gamov's *Mr. Tompkins* in style, *Alice in Quantum Land* tries to acquaint the curious reader with some of the most profound and unfamiliar ideas from quantum physics by acting them out in familiar settings using plain English. Quantum mechanics is known to be the only successful description of Nature, specially in the atomic domain of the very small, where it is admittedly counter-intuitive, if not outright *unreasonable*, but *sine qua non* all the same. This in itself is a sufficiently compelling reason to communicate to the liberally educated public some flavour of what quantum physics is all about, and Gilmore has succeeded in doing so using the time-tested appeal of the allegory and the analogy. There are no equations except for the one on p. 15. He indicates, informs, entertains, and in some measure even empowers the curious among the readers. But he has been careful: each allegory ends with an annotation summing up its *moral*, i.e., the principle of quantum physics in question, in terse prose. Thus in Chapter I, the Heisenberg Principle of Uncertainty, which is central to Quantum Physics and limits the reciprocal latitude of fixation of Energy and Time, say, is illustrated through the allegori-

cal Heisen-berg Bank that advances loan on the condition that the greater is the amount of loan-money (energy) the shorter is the time allowed for its repayment! One can hardly think of a more apt and reader-friendly allegory. The same is true of his treatment of other quantum ideas in the first eight chapters — probability amplitudes and their interference, the paradoxical superposition of states, virtual and real particles, discreteness of the quanta, indistinguishability of identical parti-

cles, and so on. The last two Chapters, entitled *The Particle MASS-querade* and *The Experimental Physics Phun Phair*, however, presuppose some factual knowledge of sub-atomic particles and are not quite reader-friendly. For these two chapters, the reader may do well to go through the end-of-chapter notes first.

While, presumably, the book is aimed at a general readership, a science background will greatly help absorption. Also, a teacher of quantum physics may like to enliven his lectures with allegories taken from the book. Experts may relax with it. It may well point the way to introduce children directly to the fuzziness of Quantum Physics at an early stage. Recommended for individuals and libraries.



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\*Director, Raman Research Institute,  
C.V. Raman Avenue, Sadashivanagar,  
Bangalore-560 080.

# The Ambivalence of the Hand in the Current Phase of Murdoch's Fiction

Suresh K. Shukla\*

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Anila Dalal. *The Later Novels of Iris Murdoch : The Tension between Contingency and Moral Concern*. Ahmedabad, Samyak Prakashan, 1993. Pp. 188, Rs. 50/-.

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In terms of the present day climate, Ms. Murdoch ranks among the great novelists such as Tom Wolfe, Thomas Pynchon, Kurt Vonnegut, Saul Bellow, Norman Mailer, John Updike, Gabriel Josipovici, Julio Cortazar, Claude Simon, Alan Robbe-Grillet and William Golding. One can imagine that it is quite difficult to research on a modern novelist whose platonism, existentialism and analytic philosophy is bound to be weighty. There are a variety of problems of cultural reference and the writer's tone of voice. To pick up such a topic for the research work and especially in this part of the country, is to take a swim across cross-currents.

This researcher has taken a wonderful format in analysing a big bulk of the Murdochian country; screening the very pattern of tension between moral concern and contingency. There is a befitting reference to the stanza of 'Isopanishad' — The Hindu view, which for that matter, the religious view, to make the spiritual goal (Parmartha), the primary objective is to realize his divine nature (Atma). Initially, the researcher attempts to show, how far Ms. Murdoch presents secretive... serious things in a compact form... the wisdom of 'Self'. 'Who-

ever knows that he knows must be amazed', says Alan Watts, it is just this sense of existential wonder that forms the background to the Murdochian country.

There is an half-hearted approach to the early literary phase of Ms. Murdoch's works. In a fit of big sweep, the researcher fails to give due importance to *The Bell*, an intensely poetic and a good knit novel. However, the researcher's center point remains 'ethical code'. Both the bells — the old and the new — in the novel... but it would have been of great importance to analyse Mead's Conflict, a man desiring to be a priest and at the same time entrapped in bizarre tendencies. The researcher has missed one of the notable points — 'To leave the world is not to leave temptations of the world.' It is true that one is ruled by 'the situation itself'.

The emergence of the Artist Narrator and the theme of the Artist vs Saint: this section is an attempt to trace implicit voice of the author as well as the working of the Protean-Self under the mask of the protagonist. It covers a very vast range — Ms. Murdoch's philosophical approach, ethics, pride in anguish and brooding or remorse raised in the present day fiction to the heights of metaphysics. The researcher has thoroughly imbibed the Murdochian spirit.

*The Sea, The Sea* a typical novel wherein Ms. Murdoch tactfully sets a late-Auden manner in a

northern landscape reminds us of Auden's verse commentary on *The Tempest*. This novel has been hailed with the most abject praise. It should be accepted that general readers of Ms. Murdoch's novels always find themselves in all sorts of philosophical tangles. A lot of care has been taken by the writer in tracing Sartre's influence on the fictional as well as non-fictional works. Three criteria have governed in evaluating the current phase of Ms. Murdoch's novels: (a) A marked choice of the researcher, (b) integrity in approach, and (c) The writer's sound acquaintance with present day literary climate.

Lastly, 'E piphany in the presence of Death' turns out to be a befitting Corollary to the last chapter. 'Death... for an average human being is a sting of a Scorpion.' Those who accept any of the various accounts of life in the next sphere, where they have not understood the present one, can and often do easily delude themselves. The dead man passes in to a state of Clairvoyant vision... The average individual is a lukewarm mixture of good and evil and consequently should not expect any exaggerated experience after death. All living forms on this global campus are engaged in a perennial flow of change involving a turning wheel of life and death. This reminds me of the Chinese Philosopher's remark. It reads 'When Kee-Lee said to his teacher, "I venture to ask about death?" Kung-Foo Tze replied: 'While you cannot comprehend life, how can you comprehend death?'

Anila Dalal's *The Later Novels* (with a special reference to the tension between Contingency and Moral Concern) is an exhaustive critical study. It is bound to be a very useful book for the young researchers in the making.

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\*Professor and Head, Department of English, Shree Hari Vallabhdas Kalidas Commerce College, Ahmedabad-380 009.



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# THESES OF THE MONTH

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## A list of doctoral theses accepted by Indian Universities

### BIOLOGICAL SCIENCES

#### Biology

1. Muthiah, C. Studies on the fishery and biology of the lizard fish, *Saurida* sp from the Karnataka Coast. Karnatak. Dr B Neelakanthan, Department of Marine Biology, Karnatak University Post Graduate Centre, Kodibag, Karwar

2. Naik, Meena T. Survey of microbes in some commercially important species of fish from Karwar waters. Karnatak. Dr (Mrs) Kusuma Neelakanthan, Department of Marine Biology, Karnatak University Post Graduate Centre, Kodibag, Karwar

#### Biochemistry

1. Jain, Meeta. Effect of trace element pollutants, selenium, arsenic and mercury, on chlorophyll metabolism. Devi Ahilya. Dr Rekha Garde, Department of Biochemistry, Devi Ahilya Vishwavidyalaya, Indore

2. Jazsar, Mohannad Mohd. Photodynamic modification of macromolecules catalysed by riboflavin in presence of Cu(II). AMU. Dr I Nasim

3. Neelam. Neurotoxicity of aluminium in experimental rats: Role of nutritional factors. Osmania. Dr Mahtab S Bamp, National Institute of Nutrition, Hyderabad

4. Sarkar, Subhashish. Studies on the antioxygenic defense system in biochemical toxicology of Cd. Devi Ahilya. Dr D Bhatnagar, Department of Biochemistry, Devi Ahilya Vishwavidyalaya, Indore.

5. Shrivastava, Ajit Kumar. Microbial cleavage of C-17 side chain of some steroid drug precursors. Devi Ahilya. Dr Shridhar Patil, Department of Biology, Devi Ahilya Vishwavidyalaya, Indore

6. Sudha, G. Effect of *Azospirillum* inoculation on the growth and nitrogen assimilation of Sorghum, *Sorghum bicolor* (C4) and finger millet, *Elausine coracana* (C3). Avinashilingam. Dr S Saroja.

#### Microbiology

1. Joshi, Neelam. Studies on the virulence associated characteristics of *Yersinia enterocolitica*. PAU.

2. Narshian, Varsha Tirthdas. Studies on phosphate solubilizing microbes with special reference to fungi. Bhavnagar. Dr H H Patel, Reader, Department of Life Science, Bhavnagar University, Bhavnagar.

3. Paul, Nandita. Improvements in efficiency of yeasts for ethanol production. PAU.

4. Sreenivasulu, C. Degradation of p-nitrophenol by soil enrichments and soil isolates of *Bacillus* Spp. Krishnadevaraya.

Prof K Venkateswarlu, Department of Microbiology, Sri Krishnadevaraya University, Anantapur.

5. Subramani, S. Enzyme catalysis in organic solvents using reverse micelles with special reference to arginase and invertase. Patel. Dr Datta Madamwar.

#### Biotechnology

1. Jana, Asim Kumar. Biosynthesis of microbial polysaccharide xanthan by *Xanthomonas campestris*. IIT, Delhi. Prof P Ghosh, Department of Biochemical Engineering and Biotechnology, Indian Institute of Technology, New Delhi.

#### Botany

1. Ahmad Jamal. Studies on the cambium of *Cassia fistula* and *Cassia nodosa*: Development, structure and seasonal variation. AMU. Prof A K M Ghouse.

2. Das, Gouri. Studies on the brown blight disease of tea, *Camellia sinensis* (L) O Kuntze caused by *Glomerella cingulata* (Stoneman) Spauld and Schrenk and its interaction with phylloplane microorganisms. North Bengal. Dr (Smt) U Chakraborty, Department of Botany, University of North Bengal, Raja Rammohanpur, Darjeeling

3. Dash, Bipin Chandra. Evaluation of genotoxic potential of gudakhu and tobacco. Sambalpur. Dr R K Das, Reader, School of Life Sciences, Sambalpur University, Jyoti Vihar

4. Dutta, Chirabrata. Microbial biomass, soil metabolism and soil characteristics in a developing tropical forest Sambalpur. Dr N Behera, Reader, School of Life Sciences, Sambalpur University, Jyoti Vihar.

5. Gupta, Deepak. Studies on *in vitro* regeneration of some plants. Jamia Hamdard. Dr P S Srivastava

6. Honrao, Balgounda Kadappa. Genetics of leaf rust resistance in durum wheat. Pune. Dr V S Prakash Rao, Agharkar Research Institute, Agarkar Road, Pune.

7. Jagmeet Kaur. Mode and mechanism of action of thidiazuron with cytokinin activity. PAU

8. Kotiwar, Onkar Shivappa. Ecological and taxonomical study of dry deciduous Gir Forest. Bhavnagar. Dr B R Pandit, Reader, Department of Life Science, Bhavnagar University, Bhavnagar

9. Kulkarni, Ashok Balwantrao. Studies on some ferns with special reference to histochemistry, morphology and morphogenesis. Pune. Dr N V Biradar, Department of Botany, University of Pune, Pune.

10. Maitra, Aparna. Studies on the bamboo associated vesicular arbuscular mycorrhiza VAM fungi and their impact

in biomass production of *Dendrocalamus strictus*. Durgavati Dr S P Gautam, Department of Botany, Rani Durgavati Vishwavidyalaya, Jabalpur

11 Meena Mycosuccession on the decaying plants of *Parthenium hysterophorus* Linn. Magadh

12 Mishra, Vinod Kumar Characterization of vegetative measures of soil and water conservation in vertisols. Devi Ahilya Dr C M Solanki, Department of Botany, PMB Gujarat Science College, Indore

13 Sadhu, Bani Prasad Biochemical changes in banana, *Musa acuminata* L CV Giant Governor during post harvest disease development with special reference to ethylene production and its control by triazole type plant growth regulators Burdwan Dr K Gupta, Reader, Department of Botany, Burdwan University, Burdwan

14 Saini, Vimal Kant Studies on the medicinal plants related to diseases of rural and tribal women and children of Mandla and Jabalpur Districts. Durgavati Dr M Oommachan, Department of Botany, Rani Durgavati Vishwavidyalaya, Jabalpur

15 Salunkhe, Indrarao Bhaurao Contribution to the flora and vegetational studies of southern Satpuda Ranges with reference to Yawal Wild Life Sanctuary Pune Dr D R Shirke, Department of Botany, University of Pune, Pune

16 Sharma, Anupama Role of fungal contaminants in quality loss of wheat grain during storages H S Gour Dr P C Jain and Dr S K Yadav, Department of Botany, Dr Harisingh Gour Vishwavidyalaya, Sagar

17 Solunkhe, Vijay Baburao Myxomycetes of north western ranges of western ghat with special reference to Dang forest Marathwada Dr S P Nanir, Govt Institute of Science, Aurangabad

18 Soud, Chitra R Role of plant growth regulators in nitrate uptake and assimilation. Saurashtra Dr Y D Singh

19 Srinivas Rao, S Anatomical studies in some Cucurbitaceae. Osmania Dr S R Shammukh Rao, S P College, Hyderabad.

#### Agriculture

1 Ambekar, Suresh Sadashivrao Heterosis and combining ability studies in intra and inter-specific crosses of desi cotton Marathwada Agri Dr S T Bunkar, Sorghum Breeder, Sorghum Research Station, Parbhani

2 Bisen, Naresh Kumar Study of genetic variability in safed musli, *Chlorophytum arundinaceum*. Ghasidas Dr B N Gupta

3 Gurmeet Singh Effect of date and method of planting-cum-irrigation application on the growth, yield and water relations of sunflower, *Helianthus annuus* L PAU

4 Kulshreshtha, Madhu Impact of air pollution on root

colonization by VAM fungi and root nodulation on black gram AMU Prof M Wajid Khan

5 Tahir, Mohammad Studies on diseases of Albizias and Bamboos in Madhya Pradesh. Ghasidas Dr Jamaluddin, Department of Forestry, Regional Forest Research Centre, Jabalpur

#### Zoology

1 Acharya, Hersha Rasihra: Avian proventriculus and ventriculus. A comparative study of their posthatching development in domestic fowl, *Gallus gallus domesticus* and Japanese quail, *Coturnix coturnix japonica* and those of certain adult representative birds. Baroda

2 Bathla, Harleen Immunobiology of mammalian sper-

### PANJAB UNIVERSITY, CHANDIGARH

(ADVERTISEMENT NO 1/96)

Applications are invited for the following posts in the University Teaching Departments so as to reach by registered post the Deputy Registrar(Estt), Panjab University, Chandigarh by February 20, 1996

I PROFESSORS (Grade Rs 4500-150-5700-200-7300)+allowances Anthropology-3 (Physical Anthropology-1), Biophysics-1; Biotechnology-1, Geology-2, Physics-1, Mathematics-5 (Applied Mathematics-1), Statistics-1, University Institute of Pharmaceutical Sciences-2 (Pharmaceutics-1, Pharmacognosy-1-temporary but likely to continue), University Business School-5, Ancient Indian History Culture & Arch-2, Education-2, Fine Arts-1(History of Art), French-1, Geography-1, Laws-1, Philosophy-1, Physical Education-1, Psychology-1, Public Administration-1, Sanskrit-1, Computer Science & Applications-1.

II READERS (Grade Rs.3700-125-4950-150-5700)+allowances Anthropology-2 (Social Anthropology-1), Biophysics-3, Biochemistry-4, Biotechnology-1, Microbiology-2, Geology-2, Physics-2, Zoology-6(Cell Biology-1, Entomology-1), Mathematics-6 (Applied Mathematics-1), Statistics-2, Chemical Engineering & Technology-3 (Chem. Engg-2, Applied Math-1), University Institute of Pharmaceutical Sciences-4, (Pharmacology-1, Pharmacognosy-1, Pharmaceutical Chemistry-1, Pharmaceutics-1), University Business School-6, Economics-3 Education-1, English-2, French-1, Geography-3, History-2(One Temp but likely to be made permanent), Laws-2 (one Temp. but likely to be made permanent), Philosophy-4, Political Science-2, Public Administration-3, Sanskrit-1, Sociology-4, Urdu-1, Mass Communication-1, Computer Science & Applications-1.

III LECTURERS (Grade Rs 2200-75-2800-100-4000)+allowances Anthropology (Social Anthropology)-1, Biophysics-2, Chemistry (Physical Chemistry)-1 (Temporary, but likely to be made permanent), Physics-5(two temporary, but likely to be made permanent), Zoology-1, Mathematics (Applied Mathematics)-1, Chemical Engineering & Tech. (Chemical Engg./Computer Science)-1 (Temporary, but likely to be made permanent), University Business School-2, Chinese-2(Dep't of Central Asian Studies), Economics-5, English-1, French-2(1 Temporary but likely to be made permanent), Indian Theatre(Traditional Movement)-1; Laws-4 (Temporary, but likely to be made permanent), Political Science-3; (One for Defence & Strategic Studies), Public Admn-1, Russian-1, Punjabi-1, Sociology-1; Urdu-1, Computer Science & Applications-2, DEPARTMENT OF EVENING STUDIES History-2, Economics-3, Political Science-2 Sanskrit-1, Urdu-1

15% posts of Lecturers will be reserved for the members of the Scheduled Castes and 7-1/2 % for the members of the Scheduled Tribes but these will be treated as unreserved if no suitable Scheduled Caste/Scheduled Tribe applicant is available

Application form alongwith 'Detailed Instructions' can be had either from Cashier, Panjab University, on payment of Rs.75/- for General Category and Rs.30/- for SC/ST candidates or from Deputy Registrar(Estt) by sending a Crossed A/c Payee Bank Draft of same amount in favour of Registrar, Panjab University, Chandigarh accompanied by a self-addressed stamped (worth Rs.8/-) envelope of 30cm x 12cm.

Candidates abroad may apply on plain paper with full bio-data (eight copies) together with a fee of Rs.75/- payable by Crossed A/c Payee Bank Draft in favour of Registrar, Panjab University, Chandigarh

matozoa during capacitation, acrosome reaction and fertilisation. PAU

3 Jain, Anju Kumari A study on the population dynamics of helminthocoenosis of certain fresh water fishes. Osmania. Prof V Rajeshwara Rao, Department of Zoology, Osmania University, Hyderabad.

4 Joshi, Shrinivas A Effect of temperature on the physiology of the silk worm, *Bombyx mori* with special reference to fat body metabolism. Karnatak Dr V L Kallapur, Department of Zoology, Karnatak University, Dharwad

5 Karikal, S M Limnobiologic study on the Butnal Reservoir in Bijapur Area. Karnatak. Dr H S Patil, Department of Zoology, Karnatak University, Dharwad

6 Mukherjee, Jayanta Kr Effects of cadmium on dietary protein absorption of an Indian fresh water teleost, *Labeo rohita* Hamilton. Burdwan. Dr G M Sinha, Department of Zoology, University of Burdwan, Burdwan

7 Singh, Shyam Bahadur Control of mustard aphid, *Lipaphis erysimi* K on mustard and gram pod borer, *Heliothis armigera* Hub on gram with neem by products separately and with safer insecticides. Devi Ahilya Dr N K Dhakad, Department of Zoology, Govt Girls Postgraduate College, Indore

8. Sisodia, Bhavna Studies on antifertility effect of *Zingiber roseum* in female rats. Jiwayi Dr A O Prakash, Reader, Department of Zoology, Jiwayi University, Gwalior

9. Srinivas, K V A study on birds of Brindavan, Kadugodi, Bangalore and its environs with special reference to their nesting habits, seasonality and nest site requirements. Sathya Sai Prof A V Lakshmunarasimham

#### Medical Sciences

1 De, Manas Kumar Some clinical, biochemical and immunological studies on *Plasmodium vivax* infection Burdwan Dr C R Maity, Department of Biochemistry, Burdwan Medical College, Burdwan and Dr A K Hati, Director, School of Tropical Medicine, Calcutta

2. Ghegade, Dattatraya Umaji. Role of nasya chikitsa in urdhvajatrugata diseases with special reference to vacha in nasanaha. Pune Vd S G Joshi, 727, K Sadashiv Peth, Balukaka Kankar Road, Pune

3. Jain, Dinesh Kumar Dosage form design of some antiinflammatory drugs. Devi Ahilya Dr S C Chaturvedi, Department of Pharmacy, Shri G S Institute of Technology and Science, Indore.

4. Parakh, Shantilal Ratanchand. Formulation design and evaluation of polymeric systems for transdermal drug delivery. Pune Dr S G Deshpande, C U Shah College of Pharmacy, S N D T Women's University, Bombay

5. Shakir Ali. Modulation of oxidative injury: Mechanistic studies. Jamia Hamdard Prof Mohammad Athar.

6. Sharma, Dhananaya. Dry meals: A novel approach in the management of duodenal ulcer. Durgavati. Dr J P Kapoor, Govt Medical College, Jabalpur.

7. Umale, Hari Narayan. Study of kashar karma. Pune Dr S I Nagral, 10 Moonreach, Prabhadevi Beach, Bombay

#### Veterinary Sciences

1. Arunachalam, S. Livestock farming situation in Tamil Nadu and the problems and perspectives. TN Vet Dr M Thiagarajan, Prof and Head, Department of Livestock Production and Management, Madras Veterinary College, Madras

2. Govindarajan, R. Studies on the course of virulent and vaccine strains of rinderpest virus in sheep. TN Vet. Dr K Nachimuthu, Prof and Head, Department of Animal Bio-technology, Madras Veterinary College, Madras.

3. Krishnamurthi, M. Skin changes associated with certain endocrine imbalance in canines. TN Vet Dr T S S Rajan, Technical Officer, Tamil Nadu Veterinary and Animal Sciences University, Madras

4 Reena Selvi, P Cryopreservation of carp spermatozoa. TN Vet Dr M J Prince Jayaseelan, Assoc Prof, Department of Aquaculture, Fisheries College and Research Institute, Tuticorin

5 Senthilathiban, R Production and economic aspects of marine capture fisheries in the mechanised sector at Tuticorin. TN Vet Dr K Venkataramanujam, Dean, Fisheries College and Research Institute, Tuticorin

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# Ministry of Human Resource Development

Department of Education  
E.S. 3 Section, New Delhi

## ISRAEL GOVERNMENT SCHOLARSHIPS, 1996-97

Applications are invited from Indian Nationals on plain paper in the format given below for the award of Israel Government Scholarships (Number of scholarships-5) tenable from October, 1996 to undertake a 9 months specialisation course of study at an Israeli University or any other institution of higher learning during the next academic session (1996-97) in the following subjects:

- 1 Agricultural Engineering
- 2 Industrial Engineering
- 3 Archaeology
- 4 International Relations
- 5 History

**QUALIFICATIONS** . Graduate/Post-Graduate degree with 60% marks or more in aggregate and in concerned field

**AGE** . Candidate should be less than 33 years as on 1st October, 1996 (relaxation in upper age limit upto two years will be given in the case of Scheduled Caste/Scheduled Tribe candidates)

**VALUE OF SCHOLARSHIPS** : The Israeli Government shall grant the Indian scholarship holders a monthly allowance of approximately 550 US \$ in local currency (Israeli Shekels), free tuition at the universities and health insurance (except dental care and chronic diseases)

**PASSAGE COST** . Travel expenses from India to Israel and back will have to be borne by the selected candidate or his/her employer/sponsor. In this regard, an undertaking in duplicate as given under may be duly filled in and signed by the applicant

**DOCUMENTS TO BE ATTACHED** . Attested photocopies of all degree/certificates showing educational qualifications. A copy of the date of birth certificate

**LAST DATE FOR THE SUBMISSION OF APPLICATION** : Application on plain paper (as per format given below) alongwith the required documents (attested copies of all certificates/degree/diplomas have to be attached) should reach the Director (Scholarships), Ministry of Human Resource Development, Department of Education, A 1/W 3 Curzon Road Barracks, Kasturba Gandhi Marg, New Delhi-110001 latest by 15-2-1996.

**NOTES** : (i) Equivalent foreign degrees will also be considered; (ii) Candidates who have already been abroad for study/training/specialization for more than six months on a scholarship are eligible to apply only if they have been in India for at least two consecutive years after their return from abroad. Applications of candidates, who are abroad at present, will not be considered. (iii) Where grades are mentioned, the candidate must indicate the conversion formula adopted by the University/Institution. (iv) Candidates should have sufficient knowledge of donor country i.e. Israel as well as of India. (v) Applications of the candidates in subject fields other than specified above will not be considered. (vi) Employed persons must send their applications through their employers with 'No objection certificate'. However, an advance copy of the application may be submitted with the understanding that application through the employer will follow. (vii) Candidates who do not possess the requisite qualifications need not apply. (viii) A copy of recent passport size photograph should be affixed on the right hand corner of the format. (ix) Incomplete applications will not be considered. The final selection rests with the donor country. Applications received late will not be considered.

### INSTRUCTIONS FOR FILLING UP THE APPLICATION FORM

#### (A) GENERAL:

- (a) In application, information in boxes must be typewritten or hand-written in BLOCK LETTERS in full wherever the boxes are provided
- (b) Each box wherever provided should contain one character (alphabet/number/punctuation etc.) leaving a box blank after each word.
- (c) Numeric values in boxes should always be given right/justified. Wherever the number of boxes provided are more than the value it

requires to contain in. For example, if in column No. 8(a), value 4 is to be entered as number of papers published, it should be written as **04**

- (d) Columns for which response codes are provided alongwith question itself, it is required to choose an appropriate code and is to be filled up in box(s) provided for the purpose
- (e) Columns which are self-explanatory, are not covered in Part(B) 'How to fill form' as these do not require further explanation.

#### (B) HOW TO FILL FORM.

Column 1 Name of the scholarship, country, course and its code are to be filled up same as printed against

Column 3 (a) against these columns in the advertisement

Column 3 (b) Enter name of the subject and its code in which you are interested. List of permissible subjects with their codes is given below

Subject Field	Code Number
Agricultural Engineering	30
Industrial Engineering	31
Archaeology	32
International Relations	33
History	20

Column 4 (a) Name is to be written in full. Please write surname Last name followed by First name and Middle name, the manner as given in example

Last Name	A	R	Y	A	
First Name	A	N	I	L	
Middle Name	K	U	M	A	R

Column 4 (e) Enter Father's/Husband's name in full.

Column 5 (a) Mailing and permanent address are to be provided in the specified format.

& 5 (b) Date of birth is to be written as DD MM YY format

Column 6 (a) For example, write 01 10.63 as **01 10 63**

Age as on specified date i.e. 01 10 96 is to be filled up as

**33** Yrs **00** Months

Column 9 (c) Date of employment is to be provided in DD MM YY format as mentioned in Column 6 (a)

Column 13 An appropriate code is to be entered depending on the asked document is enclosed with the application or not. For example, if certificate for proof of age is enclosed with application then enter 1 in the box provided

### U N D E R T A K I N G

- (a) I, hereby, undertake to bear the cost of international travel on my own if selected for scholarship offered by the Government of \_\_\_\_\_

Date \_\_\_\_\_ Signature of the Candidate

- (b) In the event of selection of \_\_\_\_\_  
(Name of the Candidate)

for scholarship against the offer of scholarship by the Government of \_\_\_\_\_  
the cost of international travel (both ways) will be borne by \_\_\_\_\_  
(Name of the sponsor)

Date \_\_\_\_\_ Signature of the sponsor  
(Strike out whichever is not applicable)

(To be affixed)  
Recent passport size  
Photograph duly signed by  
the applicant

- 5 (a) Mailing Address**
- District/City \_\_\_\_\_
- State \_\_\_\_\_
- Pin Code \_\_\_\_\_
- (b) Permanent Address**
- District/City \_\_\_\_\_
- State \_\_\_\_\_
- Pin Code \_\_\_\_\_

- If SC/ST, Whether SC/ST certificate is attached ☐ 1-Yes 2-No

S No	Board/ University	Examination Passed	Subject	Division/ class with position, if any	% of marks obtained	Year of passing
------	-------------------	--------------------	---------	---------------------------------------	---------------------	-----------------

S No	Subject	Date of publication DD-MM-YY	Duration of Completion	
			From (DD-MM-YY)	To (DD-MM-YY)

S No	Name & address organisation	Period of service		Designation	Nature of work	Reason for leaving
		From	To			

- 10 References of three persons who are familiar with your work (Two of them who taught you in an area of study relevant to course, the third may be from your employer or a person whom you have worked professionally)

- ## 11. VISITS ABROAD

- | S No | Country | Period From To | Purpose | Position | Assign-ment | Date of returning back to India |
|------|---------|----------------|---------|----------|-------------|---------------------------------|
|------|---------|----------------|---------|----------|-------------|---------------------------------|

- (i) the work at present engaged in
- (ii) nature and programme of proposed study/research/training
- (iii) future plans/prospects after the study/research/training and its prospects

**Signature**

# CLASSIFIED ADVERTISEMENTS

## ALIGARH MUSLIM UNIVERSITY ALIGARH

Advertisement No. 4A/95-96

Dated: January 15, 1996

Applications on the prescribed forms are invited for the following posts by February 29, 1996.

Number and nature of the post may vary at the time of interview. The Selection Committee will be authorised to relax the prescribed qualifications, if highly qualified scholar is otherwise found suitable for the post.

### Scales of pay :-

Professor	4500-7300 plus allowances
Reader	3700-5700 plus allowances
Lecturer	2200-4000 plus allowances

### A FACULTIES OF LIFE SCIENCES, SCIENCE, ARTS, SOCIAL SCIENCES, COMMERCE, THEOLOGY AND INTERDISCIPLINARY BIO-TECHNOLOGY UNIT

1. Professor of Wild Life Science (specialisation in Ethology, Ornithology, Mammalogy, Ecology), Centre of Wild Life & Ornithology.
2. Professor of Computer Science, Department of Computer Science
3. Professor of Urdu, Department of Urdu.
4. Professor of Strategic Studies (Plan post), Centre for Strategic Studies
5. Professor of West Asian Studies, Centre of West Asian Studies.
6. Professor of Medieval Indian History-CAS, Department of History
7. Professor of History, Department of History

### Qualifications

#### (a) Essential:

An eminent scholar with published work of high quality actively engaged in research. About ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

#### (b) Desirable:

(For the post of Professor of Wildlife).

Candidates having experience in curriculum development at undergraduate and postgraduate levels and of guiding studies in natural forested area would be preferred.

(For the post of Professor of Computer Science).

Experience in teaching and research in any of the areas of Theoretical Computer Science, Operating System, Information Systems, Computer Architecture, Computer graphics and Communication net work.

(For the post of Professor of Strategic Studies)

Specialisation in International Relations and Development/Strategic Studies.

NOTE: Master's degree should be in Political Science/International Relations.

(For the post of Professor of West Asian Studies).

- (i) Focus of research on West Asia
- (ii) Knowledge of any language of the area

8. Readers in Statistics and Operations Research, Department of Statistics and Operations Research.
9. Reader in History, Women's College.
10. Reader in Economic History (CAS), Department of History
11. Reader in Modern History, Department of History.
12. Readers in History, Department of History.
13. Reader in Geology, Department of Geology.
14. Reader in Persian, Women's College.
15. Readers in Persian, Department of Persian.
16. Reader in Persian with specialisation in Modern and Spoken Persian, Department of Persian.
17. Reader in Journalism (Plan Post)
18. Readers in Hindi, Department of Hindi.
19. Reader in Philosophy, Department of Philosophy.
20. Reader in Philosophy (with specialisation in Muslim Philosophy with knowledge of Arabic / Persian), Department of Philosophy.

21. Readers in Business Administration, Department of Business Administration.

22. Reader in Political Science (Political Behaviour & Theory), Department of Political Science.

23. Reader in English, Women's College.

24. Readers in Mathematics, (one under DSA Programme) Department of Mathematics.

25. Reader in Economics, Department of Economics.

26. Reader, in Sociology, Department of Sociology.

### Qualifications

#### (a) Essential:

Good academic record with a Doctoral degree or equivalent published work in the appropriate branch.

Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position

NOTE: (For the Post of Reader in Economic History, CAS)

"The thrust-area of the Centre of Advanced Studies in History is Medieval History."

#### (b) Desirable:

(For one post of Reader in Philosophy)

Specialization in Contemporary Western Philosophy

(For the post of Reader in Maths - Under DSA Programme)

Adequate expertise in Computer Application and Numerical Methods.

26. Lecturers in Botany, Department of Botany.
27. Lecturer in Psychology, Women's College
28. Lecturer in Economics, Women's College
29. Lecturer in Linguistics, Women's College
30. Lecturer in Molecular Biology, Interdisciplinary Biotechnology Unit.
31. Lecturer in Geology, Department of Geology



32. Lecturer in Urdu, Department of Urdu.
33. Lecturer in Malayalam, Department of Modern Indian Languages.
34. Lecturer in Punjabi (Plan Post), Department of Modern Indian Languages.
35. Lecturer in History (Plan Post), Women's College
36. Lecturer in History of Science, Department of History.
37. Lecturers in Medieval Indian History (CAS) Department of History.
38. Lecturer in Medieval Indian History of Science - CAS, Department of History.
39. Lecturers in Library and Information Science, Department of Library and Information Science.
40. Lecturers in Hindi, Department of Hindi.
41. Lecturers in Physical Education with specialisations in (Track and field events, Football, Yoga, Gymnastics and Vocational Oriental Courses/Judo/Swimming), Department of Physical Health and Sports Education.
42. Lecturer in Economics, Department of Economics.

**Qualifications**

**(a) Essential**

- (i) Good academic record with atleast 55% marks or an equivalent grade at Master Degree level in the relevant subject from an Indian University or an equivalent degree from a foreign University.
- (ii) Candidates besides fulfilling the above qualifications should have cleared the eligibility test for lecturers conducted by UGC

OR

Should have submitted their Ph.D. thesis, or, completed their M.Phil degree by 31st December, 1993.

NOTE Relaxation of the minimum marks at the PG level from 55% to 50% for appointment as Lecturer to the candidates who have cleared the JRF examination conducted by UGC/CSIR only, prior to 1989, when the minimum marks required to appear for JRF exam were 50%.

**(b) Desirable**

(For the post of Lecturer in Molecular Biology only).

Research experience supported by published papers in Molecular Genetics/Genetic Engineering.

(For the posts of Lecturer in Physical Health and Sports Education only).

- (i) A Doctor's degree in a relevant subject or research work of an equally high standard.
  - (ii) Diploma in specialisation in coaching a game or sport from a recognised institution.
  - (iii) Participation at Inter University or Inter State Sports Competition.
- Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any qualifications prescribed in (ii) above
- Provided further that if a Lecturer in a discipline other than physical education is required to be appointed in a faculty of physical education, the qualifications prescribed for recruitment to the post of Lecturer in the parent discipline may be insisted upon
- Provided that for a Lecturer teaching Yoga a degree of diploma from a recognised institution will be essential.

Provided further, that if a candidate possesses an M.Phil degree or equivalent research work is not available or is considered suitable, a person possessing a good academic record may be appointed provided he has done research work for atleast one year or has practical experience in a research laboratory/organisation on the condition that he will have to obtain M.Phil degree or recognised degree beyond Master's degree or give evidence of research work of equivalent high standard within eight years of his appointment failing which he will not be able to earn future increment until he fulfils these requirements.

**B) FACULTY OF ENGINEERING AND TECHNOLOGY**

1. Professor of Applied Chemistry, Department of Applied Chemistry.

**Qualifications (Essential)**

- (i) Ph.D degree with 1st class M.Sc. in appropriate branch
- (ii) 10 years experience in teaching/industry/research out of which five years must be at the level of the Assistant Professor or equivalent.

NOTE:- Candidates from Industry/Profession with recognised professional work of high standard recognised at National/International level equivalent to Doctorate would also be eligible.

2. Professors of Civil Engineering, Dept. of Civil Engineering.
3. Professor of Electrical Engineering, Dept. of Electrical Engineering.

**Qualifications (Essential)**

- (i) Ph.D. degree with 1st class degree at Bachelor's or Master's level in an appropriate branch of Engineering/Technology.
  - (ii) 10 years experience in teaching/industry/research out of which 5 years must be at the level of Assistant Professor or equivalent
- NOTE:- Candidates from Industry/Profession with recognised professional work of high standard recognised at National/International level equivalent to Doctorate would also be eligible
4. Reader in Structures Engineering, Dept. of Civil Engineering.
  5. Reader in Hydraulics Engineering, Dept. of Civil Engineering.
  6. Reader in Soil Mechanics, Dept. of Civil Engineering.
  7. Reader in Civil Engineering, Dept. of Civil Engineering.
  8. Reader in Drafting & Designing (Mechanical) University Polytechnic.

**Qualifications**

**(a) Essential:**

- (i) First Class Master's degree in appropriate branch of Engineering/Technology
  - (ii) 5 years experience in Teaching/Industry/Research at the appropriate level
- NOTE Candidates from Industry/Profession with recognised professional work equivalent to Master's degree in the case of Engineering/Technology would also be eligible

**(b) Desirable:**

Ph D Degree in Engineering/Technology

9. Reader in Applied Physics, Department of Applied Physics.
  10. Reader in Applied Mathematics, Department of Applied Mathematics
- Qualifications**

**(a) Essential:**

- (i) Ph D. in appropriate branch with 1st Class in Master's degree.
- (ii) 5 years experience in Teaching/Industry/Research at the appropriate level

NOTE. Candidates from Industry/Profession with recognised professional work equivalent to Ph.D would also be eligible.

**(b) Desirable:**

Post Doctoral work.

11. Lecturer in Applied Physics, Department of Applied Physics.
12. Lecturer in Applied Physics, Women's Polytechnic.
13. Lecturer in English, Women's Polytechnic.

**Qualifications (Essential):**

1st Class Master's degree in appropriate branch of study.

14. Lecturers in Mechanical Engineering, University Polytechnic.

**Qualifications (Essential)**

1st Class Bachelor's degree in appropriate branch of Engineering/Technology

**C. INSTITUTE OF AGRICULTURE**

1. Professor of Post-Harvest Engineering and Technology.

**Qualifications**

**(a) Essential:**

- (i) Ph D degree with 1st class at Bachelor's or Master's level in Agricultural/Chemical/Biochemical/ Food Engineering/Technology/Dairy Engineering or Technology/Post-Harvest Engineering and Technology

- (ii) 10 years experience in teaching/industry/research out of which 5 years must be at the level of Assistant Professor or equivalent.

**(b) Desirable:**

Experience in teaching/industry/research relating to post-production processing of good products

**D FACULTY OF MEDICINE.**

- 1 Professor of Anaesthesiology (Plan post), Dept of Anaesthesiology.

**Qualifications (Essential)**

M.D (Anaesthesiology)/

M S (Anaesthesiology)

Teaching/Research Experience As Reader in Anaesthesiology for 4 years in a Medical College

2. Professor of Ophthalmology (Retina Service) Dept. of Ophthalmology

**Qualifications**

**(a) Essential**

M.S. Ophthalmology/

M.D. Ophthalmology

Teaching/Research Experience As Reader in Ophthalmology for 4 years in a Medical College.

**Desirable**

Adequate Experience in Retina work

3. Reader in Anatomy, Department of Anatomy

**Qualifications (Essential):**

M.S. (Anatomy)

M.B.B.S. with M.Sc. (Anatomy)/

Ph.D. (Medical Anatomy)/

D.Sc. (Medical Anatomy)

Teaching/Research Experience: As Lecturer in Anatomy for 5 years in a Medical College

4. Reader in Community Medicine, Dept. of Community Medicine.

**Qualifications (Essential)**

M.D. (Social & Preventive Medicine)/ (Community Medicine)

M D. (Medicine DPH)

Teaching/Research Experience. As Lecturer in Social and Preventive Medicine for 5 years in Medical College

5. Readers in General Pathology, Dept. of Pathology.

**Qualifications (Essential):**

M D (Pathology)/

M.D. (Pathology & Bacteriology)/

M.D (Pathology with Bacteriology)/

Ph D (Pathology)/

D.Sc (Pathology)

Teaching/Research Experience As Lecturer in Pathology for 5 years in a Medical College

6. Reader in Pharmacology, Department of Pharmacology.

**Qualifications (Essential):**

M D (Pharmacology)/

M D (Pharmacology & Therapeutics)/

M B B S. with M.Sc (Pharmacology),

Ph D (Medical Pharmacology)/

D Sc (Medical Pharmacology)

Teaching/Research Experience As Lecturer in Pharmacology for 5 years in a Medical College

- 7 Lecturer in Microbiology, (Temporary) Department of Ophthalmology

**Qualifications (Essential).**

M D (Bacteriology)/

M D (Microbiology)/M D (Bacteriology with Pathology)/

M D (Pathology & Bacteriology)

M B B S with M Sc (Medical Bacteriology)/

M Sc. (Medical Microbiology)/

Ph D (Medical Bacteriology)/

Ph.D (Medical Microbiology)/

D Sc (Medical Bacteriology)/

D Sc (Medical Microbiology)

Teaching/Research Experience Requisite recognised postgraduate qualification in the subject.

8. Lecturer in Dermatology, Department of Dermatology.

**Qualifications (Essential)**

M.D (Dermatology & Venereology)/

M.D. (Medicine) with D V.D., D D.

Teaching/Research Experience · Requisite recognised postgraduate qualification in the subject.

**E) FACULTY OF UNANI MEDICINE**

1. Reader in Jarahat, Department of Jarahat

**Qualifications**

**(a) Essential:**

M.S (General Surgery) or its equivalent. Atleast five years experience in the field

**(b) Desirable:**

Knowledge of Arabic/Urdu.

Published work.

Experience of Hospital Administration

2. Lecturer in Jarahat, Department of Jarahat

**Qualifications (Essential):**

- (i) Degree/Diploma in Unani Medicine from a University established by law or a Statutory Board/Faculty/Examining Body of Indian Medicine or equivalent and included in IInd Schedule of Indian Medicine Central Council Act, 1970

- (ii) Teaching experience in a recognised institution for three years in the respective discipline

- (iii) Postgraduate qualification in the discipline from the recognised institution/University established by law.

- (iv) Original published papers/books on the subject

NOTE:- In case of those disciplines in which postgraduate education has not been started and candidates are not available, the compensation shall be made by the enhancement in the teaching experience for six years in the subject concerned shall be essentially required

Note - For all the posts in Women's College/Women's Polytechnic.

Preference will be given to Women Candidates.

Higher initial start may be given to candidates possessing exceptional qualifications and experience

Prescribed application forms with instructions may be had from the Assistant Registrar (Selection Committees), Aligarh Muslim University, Aligarh-202002 on payment of Rs 20/- to be deposited in the Cash Section, Finance Office, Aligarh Muslim University, Aligarh, or through a crossed IPO payable to the Finance Officer, Aligarh Muslim University, Aligarh, either personally or by sending a self addressed and stamped (worth Rs. 2/-) envelope of size 9" x 4", superscribing on top left of the envelope "Requisition for Employment Form"

**DR. H.A.S. Jafri**  
**REGISTRAR**

**BEANT COLLEGE OF  
ENGINEERING AND  
TECHNOLOGY**

**GURDASPUR**

(Established by the Punjab  
Government)

**Advertisement No. 1/96**

Applications are invited for the following posts for Beant College of Engineering and Technology, Village Barian, Pathankot Road, Gurdaspur - 143 521. The college is registered as a Society under the Societies Registration Act, 1860. The College is fully funded by the Punjab Government. The College has started functioning with a residential campus from the academic session 1995-96 at its own premises, located 3 Kms from Gurdaspur Railway Station. The posts carry D.A. and other allowances as admissible under the college Bye-laws. Applications should be submitted on plain paper giving detailed Bio-data which should include name, father's name, date of birth, permanent and postal address, qualifications, experience, publications/research projects, honours/awards and a pass port size photograph alongwith the attested copies of the testimonials. Write clearly on the top of the envelope the name of the post and department for which you are an applicant. The application accompanied by Crossed Indian Postal Order of Rs. 15/- (Rs. 7.50 for SC/ST candidates) in favour of the Principal and payable at Gurdaspur should reach upto 27.02.96 by registered post.

**1. Professor** One each in Chemical Engineering, Computer Science and Engineering, Mechanical Engineering, Production Engineering, Applied Mathematics, Applied Physics, Applied Chemistry, Humanities (specialization Economics or Management or English Language)

**Pay Scale:** Rs. 4500-7300/- **Essential Qualifications:** Ph.D. with first class Bachelor's Degree or Master's Degree in appropriate Branch of Engineering/Technology OR Ph.D. with first class Bachelor's Degree or Master's Degree in appropriate branch for teaching posts in Humanities and sciences. Experience Ten years distinguished experience in Teaching/Industry/Research out of which five years must be at the level of Assistant Professor OR equivalent. Candidates from Industry/Profession with recognized professional work of high standard recognized at national/ international level equivalent to Doctorate would also be eligible.

**2. Assistant Professors.**

**Pay Scale** Rs. 3700-5700/-.

- a) Chemical Engineering - One.
- b) Computer Science and Engineering - Three (One reserved for SC/ST).  
(Specialization : Computer/Elec-

tronics/Electrical).

- c) Mechanical Engineering - Three (One reserved for SC/ST).
- d) Production Engineering - One (reserved for SC/ST)
- e) Applied Mathematics - One (reserved for SC/ST).  
(Specialization - Preferably computer oriented subjects)

- f) Applied Physics One (Reserved for SC/ST).

(Specialization: Preferably Materials Science).

**Essential Qualifications:** First Class Master's Degree in appropriate branch of Engg/Technology OR Ph.D. in appropriate branch with First Class in Master's Degree in case of teaching posts in Human-

**INDIAN INSTITUTE OF ADVANCED STUDY**

**RASHTRAPATI, NIVAS, SHIMLA-171005**

**Advertisement No. 5/95**

Applications are invited by the Institute upto 28.2.96 for the award of Fellowships in the Institute's multi-disciplinary team-project on "Gandhian Perspective". Selected fellows will be expected to do research on any of the following, or related themes: (a) Gandhi and the Civilizational Crisis, (b) Gandhi, Religion and Morality, (c) Thought, Action and the Good Life, (d) Non-Violence and Social, Political, Economic Transformation, (e) Man, Nature and Spirit, (f) Gandhi and Tradition, (g) Social Movements for Swaraj, (h) Gandhi on Rationality, Truth and Meaning of Life, (i) Gandhi and the Prospects for World Peace, (j) Gandhi and his Critics, (k) Interpretations of Gandhi: Political, Social and Intellectual, (l) Gandhi in Indian Literature. For details, write to the Officer on Special Duty (Administration), Indian Institute of Advanced Study, Rashtrapati Nivas, Shimla-171005.

**ADVERTISEMENT NO. 1/96**

**MAHARSHI DAYANAND UNIVERSITY**

**ROHTAK**

Invites applications (through proper channel from those in employment) on prescribed form (obtainable from Publication Cell on cash payment of Rs. 10/- at counter, Rs. 20/- by registered post) for the posts:

**UNIVERSITY TEACHING DEPARTMENTS :**

**Professors :** Psychology-1, Journalism-1, Institute of Management Studies & Research-1, Sir Chhotu Ram Chair-1

**Readers :** Law-2, Physics (Laser)-1.

**Lecturers :** Law-3 (two for S.C. and one for B.C.), History for Law Department-1 (for B.C.), Institute of Management Studies and Research-2 (one for S.C. and one against leave vacancy but likely to continue), Directorate of Distance Education-1 (leave vacancy but likely to continue with the specialisation of Business Management).

**P.G. REGIONAL CENTRE, REWARI :**

**Lecturers :** History-2 (one for S.C. and one leave vacancy but likely to continue).

**UNIVERSITY COLLEGE, ROHTAK :**

**Lecturer :** Sociology-1

Number of posts may vary. Applications of the candidates having prescribed qualifications as attached with the application form alongwith attested testimonials and application fee of Rs. 50/- in the form of demand draft in favour of the Registrar, M.D. University, Rohtak should reach the Registrar by 18.2.1996. Those who have already applied in the last advertisement need not apply again.

**REGISTRAR**

ties and Sciences Experience Five Years in Teaching/Industry/Research at the appropriate level

**3 Lecturers Pay Scale Rs 2200-4000/-**

- a) Chemical Engineering - Two (One reserved for SC/ST)
- b) Computer Sc & Engineering - Six (Two reserved for SC/ST, One for Ex-Servicemen) (Specialization: Computer/ Electronics/Electrical)
- c) Mechanical Engineering - Three (One reserved for SC/ST)
- d) Production Engineering - Two (One reserved for SC/ST)
- e) Applied Physics - One (Reserved for SC/ST)
- f) Applied Mathematics - Two (One reserved for SC/ST)
- g) Humanities - One (Reserved for SC/ST)

(Specialization Preferably atleast one with Computer oriented subjects)

(Specialization English Language or Economics or Management)

**Essential Qualifications** First Class Bachelor's Degree in appropriate branch of Engineering/Technology OR first Class Master's Degree in appropriate branch of study in case of teaching posts in Humanities and Sciences

**NOTE** In the event of suitable SC/ST candidates not being available, posts might be filled with candidates from open category. Number of posts may be increased or decreased. Actual first-class-rail/Delux-bus fare for the shortest route will be paid to the candidates called for interview from out stations to the place of interview. A C bus fare is also permissible to the candidates for the post of Professor. Actual second-class-rail/ordinary-bus fare for the shortest route will be paid to the candidates for the position of Lecturer. Payments will be made on the production of actual receipts.

Candidates in service should apply through proper channel. An advance copy with requisite fee and supporting documents should reach the College office before the last date.

**J K. Sharma**  
**PRINCIPAL**

**ST. PETER'S COLLEGE**  
**KOLENCHERY-682 311**

**WANTED**

Lecturers in Botany (Temporary Vacancy)  
Under merit/Community quota  
Appointment will be subject to the approval of Govt /University  
**Age & Qualification :** As prescribed by

the University and Government

Appointee will not have any claim for UGC Scheme vacancies, will be paid only state salary, will have to teach in the pre-degree classes only and will have to go to the pre-degree category

Apply within one month from the date of this notification

Photo copy of certificate to prove date of birth, Marklists and degree certificates from B Sc degree level are to be enclosed along with the application

Application form can be had from the undersigned on payment of Rs 100/- (By M O Rs 107/-)

**PRINCIPAL**

**NATIONAL INSTITUTE OF EDUCATIONAL  
PLANNING AND ADMINISTRATION  
17-B, SRI AUROBINDO MARG, NEW DELHI**

Applications are invited for 2 posts of Fellow (one in Educational Finance Unit and other in Sub-National Systems Unit) in the pay scale of Rs 3700-125-4950-150-5700. The qualifications, experience etc are as under

**Age** 45 years

**Qualification**  
**Essential**

- a) Should have consistently good academic record with first or high second class (B+) Master's degree in the relevant field of study or an equivalent degree of a foreign university
- b) Either a doctorate degree of an Indian or foreign university or published research work of a high standard or outstanding academic contribution in the relevant field(s), and
- c) At least 5 years experience of teaching/conducting and/or guiding research in fields relating to educational planning and administration, or atleast 5 years administrative/professional experience in Government in relevant field
- d) Proven merit in writing/editing/documentation/publication work

**Desirable**

- 1 Ph D Degree in Social Sciences with high Second Class Post Graduate Degree in Economics or Commerce or Business Economics or Business Administration/Management preferably with the proven interest/expertise in education (for the post of Educational Finance)
- 2 Specialisation in rural development/local government public administration/Educational Management at local levels primary data based empirical research experience in planning and management of education at the local levels (for Sub-National Systems post)

**Deputation/Transfer**

- a) Officers/Academics from Central or State Governments Universities, Professional and Research Institutions and bodies
  - i) holding analogous post on regular basis, or
  - ii) with 5 years regular service in post in the pay scale of Rs 2200-4000 from government source or 5 years regular service as lecturer or in post in the pay scale of Rs 2200-4000 or equivalent and
  - iii) Possessing qualification prescribed for direct recruits as mentioned above

**NOTE**

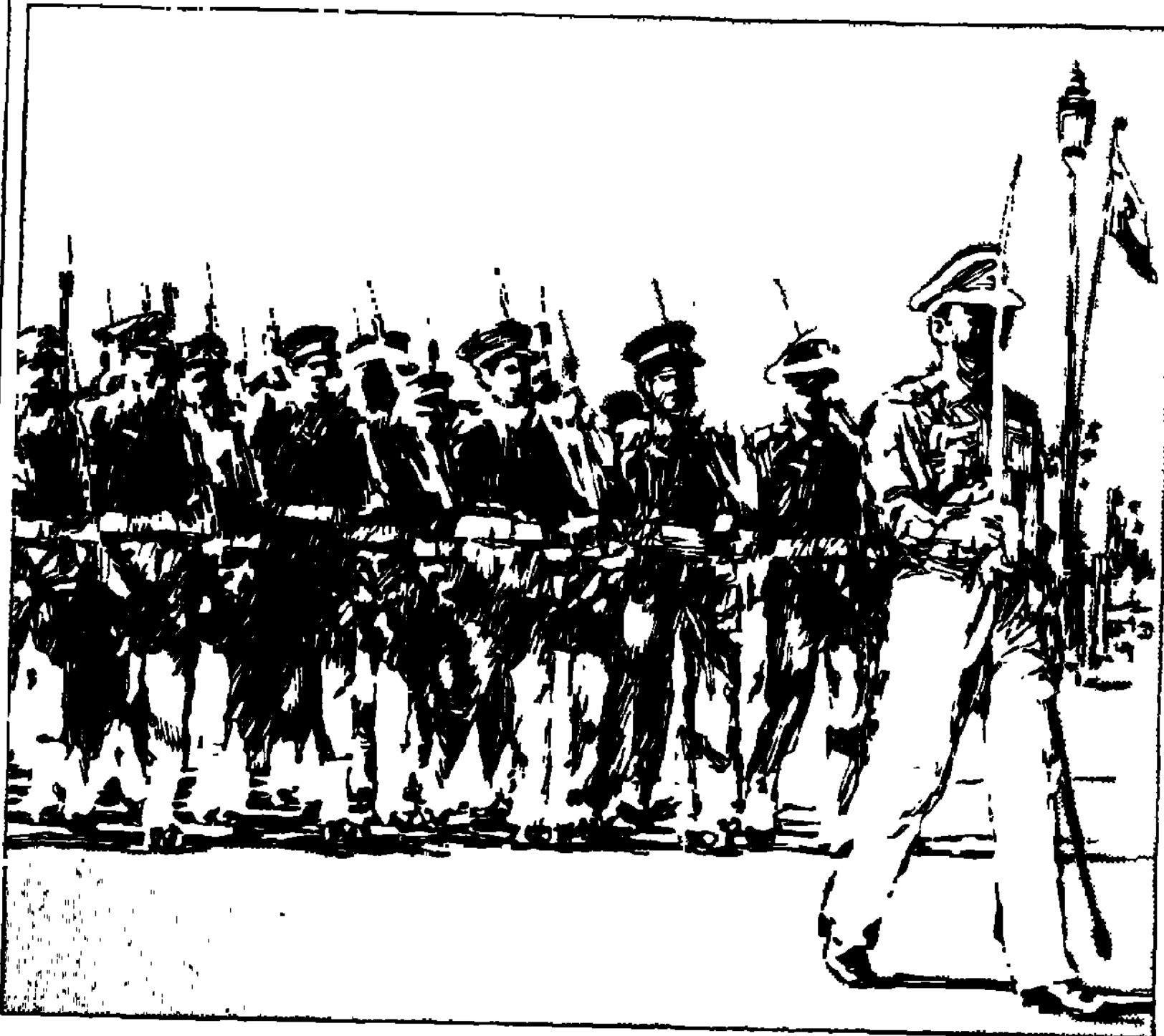
- 1 In case of persons drawn from administrative cadres the condition (ii) above will not apply but there should be evidence of academic and innovative contribution in the field of educational planning and administration
- 2 The benefit of added years of service under Rule 30 of CCs (Pension) Rules, 1972 shall be admissible on fulfilment of all the conditions under these rules in the case of direct recruits
- 3 Candidates already in employment under Govt /Semi Govt Organisations/Autonomous bodies shall send their applications through proper channel
- 4 Other things being equal, preference will be given to SC/ST candidates
- 5 Candidates from outside Delhi called for interview will be paid single return second class train fare by shortest route

Applications from candidates fulfilling the required eligibility conditions alongwith attested copies of certificates, a recent passport size photograph and a non-refundable crossed postal order of Rs 20/- (not required in the case of SC/ST candidates) drawn in favour of the Acting Registrar, National Institute of Educational Planning and Administration, 17-B, Sri Aurobindo Marg, New Delhi-110 016 within one month of the publication of this advertisement

**Acting Registrar**

davp 1192/14/95

# *Together on the path of Progress*



Republic Day, Jan 26, 1996

*Together we achieve*

dwp 95/592